PACIFIC SALMON COMMISSION
SELECTIVE FISHERY EVALUATION COMMITTEE

REVIEW OF MASS MARKING AND MARK-SELECTIVE FISHERY ACTIVITIES PROPOSED TO OCCUR IN 2015

REPORT SFEC (16)-1

January 2016

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[1] Past committee members who provided input to this report include: Mr. Kirt Hughes, WDFW; and Ms. Laurie Peterson, WDFW.

LIST OF ACRONYMS WITH DEFINITIONS

ADFG	Alaska Department of Fish and Game	**NWIFC**	Northwest Indian Fisheries Commission
AK	Alaska	**ODFW**	Oregon Department of Fish and Wildlife
BC	British Columbia	**OR**	Oregon
BY	Brood Year	**PS**	Puget Sound
CA	California	**PSC**	Pacific Salmon Commission
CDFO	Canadian Department of Fisheries and Oceans	**PSMFC**	Pacific States Marine Fisheries Commission
CDFW	California Department of Fish and Wildlife	**PST**	Pacific Salmon Treaty
COLR	Columbia River	**QIN**	Quinault Indian Nation
CoTC	Coho Technical Committee	**RMIS**	Regional Mark Information System
CST	Coast	**SFAWG**	SFEC- Analytical Work Group
CTC	Chinook Technical Committee	**SFEC**	Selective Fishery Evaluation Committee
CWT	Coded-Wire Tag	**SFRCWG**	Regional Coordination Work Group
DIT	Double-Index Tag	**SHRP**	Sport Head Recovery Program
ER	Exploitation Rate	**SJDF**	Strait of Juan de Fuca
ETD	Electronic Tag Detection	**TERM**	Terminal Fishery
ID	Idaho	**URB**	Upriver Bright (Fall Chinook)
IDFG	Idaho Department of Fish and Game	**US**	United States
MM	Mass Marking	**VTR**	Voluntary Trip Report
MOU	Memorandum of Understanding	**WA**	Washington
MSF	Mark-Selective Fishery	**WCVI**	West Coast Vancouver Island
MU	Management Unit	**WDFW**	Washington Department of Fish and Wildlife
NSF	Non-Selective Fishery		

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EXECUTIVE SUMMARY

This report provides a summary of the proposed coastwide plans for mass marking (MM) of coho and Chinook salmon and the conduct of mark-selective fisheries (MSFs) in 2015. Issues with implications for maintenance of the coastwide coded-wire tag program are identified and recommendations are proposed.

Summary of 2015 Mass Marking Proposals

Throughout this report a mass-marked fish refers to a fish with an adipose fin clip and a double-index tag (DIT) group includes two related coded-wire tag (CWT) groups, one marked and one unmarked. The terms 'marked' and 'clipped', and likewise 'unmarked' and 'unclipped', are used interchangeably.

Mass Marking and DIT Programs

Twenty-one proposals (8 for coho and 13 for Chinook) were received for mass marking (MM) occurring in 2015 (Appendix E). Of these, one was received from southern British Columbia (BC) and 20 from southern United States (US). The Selective Fishery Evaluation Committee (SFEC) believes these proposals cover all MM programs of relevance to the Pacific Salmon Commission (PSC).

Within the MM proposals received from southern BC and southern US, approximately 34 million coho salmon are proposed to be mass-marked in 2015 (Table 2-1; Figure 2-1A), a level comparable to that proposed in 2014. Essentially all hatchery coho production intended for harvest, from southern BC and southern US hatcheries will be mass marked. Currently there are 16 proposed coho salmon DIT groups (Table 2-1; Appendix F), of which two will be released from southern BC, seven from Puget Sound, four from the Washington (WA) coast, and three from the Columbia River Basin. This is two fewer DIT groups than what was proposed in the 2014 proposals.

Approximately 117 million Chinook are proposed to be mass marked in 2015 from southern US Chinook hatcheries (Table 2-1; Figure 2-1B). This is approximately two million less than were proposed for 2014. Most all hatchery Chinook production from southern US hatcheries intended for harvest will be mass marked. Currently there are 14 proposed Chinook salmon DIT groups (Table 2-1, Appendix G), of which seven are from Puget Sound facilities, three from coastal facilities, and four from Columbia River facilities. The number of DIT groups is unchanged from the 2014 proposals; however, ODFW has discontinued the Big Creek Hatchery DIT and WDFW is proposing a DIT at the Naselle Hatchery.

Sampling Programs

Prior to MM, the adipose fin clip was employed as a visual indicator for fish containing a CWT. Consequently, sampling programs which were designed to collect heads from fish with missing adipose fins resulted in samples of heads, all which contained CWTs. With MM, a large number of marked fish do not contain CWTs; further, CWTs must be recovered from both marked and unmarked fish to obtain data for DIT releases to estimate fishery impacts. Electronic tag detection (ETD) equipment has been developed as a means to efficiently identify marked and unmarked fish containing CWTs. However, ETD is not employed coastwide because of

continuing reservations by some agencies regarding the cost, accuracy, and practical feasibility of incorporating this technology into their sampling programs. The Alaska Department of Fish and Game (ADFG), Canadian Department of Fisheries and Oceans (CDFO), Oregon Department of Fish and Wildlife (ODFW), and California Department of Fish and Wildlife (CDFW) all conduct sampling programs which will not recover the unclipped component of DIT programs required to assess impacts of MSFs. Fisheries from which unmarked DIT recoveries should have been observed create gaps in analyses of fishery impacts on unmarked (wild) fish.

Considering sampling programs coastwide, some agencies already implement comprehensive electronic sampling strategies to recover CWTs from sport and commercial fisheries, while other agencies are still working to increase use of ETD. Washington State continues to fully implement electronic sampling statewide and consistently reports CWT recoveries of the unmarked components of DIT groups in recreational marine and some freshwater MSFs, as well as in non-selective fisheries (NSFs). Starting in 2008, Canada also committed to full electronic sampling and reporting of all CWTs in all commercial fisheries for Chinook. Coho salmon in Canadian commercial fisheries are visually sampled, except for heads delivered by northern 'freezer' trollers, which are electronically sampled. Canada continues to rely on the Sport Head Recovery Program (SHRP) to recover CWTs from NSFs and MSFs alike and thus, no unmarked coded-wire-tagged recoveries are available from them. Oregon Department of Fish and Wildlife continues to use visual sampling for fall Chinook and electronic sampling for spring Chinook and coho in the Columbia River. Beginning in 2017, ODFW initiated electronic sampling of all ocean recreational and commercial salmon fisheries off the coast of Oregon (OR).

Encounters of large numbers of mass-marked Chinook are increasingly impacting catch sampling programs in northern fisheries; for example, approximately 77% of the Chinook caught in 2014 in the southeast Alaskan troll fishery with a missing adipose fin did not contain a CWT (Figure 2-3). The increased cost to deal with the additional marked fish (e.g., storage, and shipping to and sorting of heads in the dissection laboratories) are not quantified, but will impact the programs.

Summary of 2015 Mark-Selective Fishery Proposals

Mark-selective fisheries have been prosecuted for coho since 1998 and for Chinook since 2003. For 2015, the SFEC received 63 MSF proposals for coho and Chinook salmon in ADFG, CDFO, WDFW, and ODFW fisheries. The SFEC believes these proposals cover all MSFs planned for 2015 of relevance to the PSC. The proposals submitted to the SFEC for review are listed in Table 3-1. Further details describing the proposed MSFs and comments by the SFEC are provided in Table 3-3.

Nineteen proposals were received for coho salmon MSFs to occur in 2015 and 44 proposals were received for Chinook Salmon MSFs. Agencies provided the majority of the requested information in each of the proposals and the proposals were submitted on time.

SFEC received one proposal for a new mark-selective fishery for Chinook salmon in the July-August coho salmon troll fishery.

Up until 2008, Chinook MSF's were largely restricted to Puget Sound and Columbia River spring Chinook. Since then, Chinook MSF's have expanded substantially in marine and freshwater areas. In 2007, 12 Chinook MSF's were promulgated; in 2010, that number doubled to 24 Chinook MSF's and a larger number of indicator stocks are now vulnerable to being encountered in MSF's.

The majority of MSF proposals are for terminal marine or freshwater areas, each of which will impact mature fish of one to several stocks. Multiple MSF's for both coho and Chinook are proposed for ocean areas in 2015 in SEAK, BC, WA (WA ocean areas 1 through 4 and the Columbia River), and OR. These fisheries will impact many stocks and also multiple broods of Chinook. Table 3-4 and Table 3-5 each provide historical information on encounters of tagged and marked fish to identify coho and Chinook tagged stocks that can be expected in these areas with MSF's.

Issues and Concerns

Post-season Reports

Post-season reports on MSF's are required for each MSF promulgated. One of the basic functions of these reports is to provide a record of how fisheries were actually implemented and whether there were any changes in the way the fisheries and sampling programs were conducted relative to the proposal. These reports are to be submitted in the form of three tables (Appendix H). The first two tables should be submitted by the annual PSC post-season meeting following the year of the fishery. No SFEC MSF post-season report/tables were found in the US or Canadian post-season reports (Jan 2015). Although these SFEC tables are not included in the PSC post-season reports, CDFO and WDFW do provide fishery regulations and preliminary landed catch estimates for mark-selective fisheries in these reports.

Mixed-Bag Regulations

Regulations to implement MSF's are increasingly complex, making analyses to estimate impacts challenging in a number of ways. Different types of mixed bag regulations are part of the MSF's proposed by Canada, Washington, and Oregon for recreational fisheries. As MSF's expand, a variety of types of mixed bag regulations are being proposed. The regulations include a range of rules that specify when and how anglers may retain various combinations of adult and juvenile marked and unmarked fish in their daily bag limits. The SFEC is not aware of reliable methods for estimating impacts on marked and unmarked fish under mixed bag regulations and the agencies proposing these mixed bag regulations should assist in developing the analytical tools to measure the impacts of these fisheries.

Recommendations and Issues Requiring PSC Direction

Proposal Review Process

It is recommended that the PSC request agencies to submit proposals for all potential 2016 MSF and MSF's by November 2015, and for agencies to provide both preliminary and final post-season reports on the conduct of MSF's within the timeframe adopted by the PSC. Agencies need to prioritize these tasks so that proposals and MSF post-season reports are completed and submitted in a timely manner.

Heterogeneity Coordination and Cooperation

Mass marking, double-index tagging, and CWT sampling programs continue to be insufficiently coordinated to support analysis by PSC technical committees. It is also not clear that agencies are collecting adequate and necessary data to permit estimation of unmarked CWT recoveries in fisheries and escapements so that cohort reconstructions can be carried out in the unmarked component of the DIT group release. With the expansion of Chinook marine MRPs, the geographical range of electronic CWT sampling needs to be expanded and the number of double-index tagged stocks needs to be increased. Specifically, ETD needs to be implemented by ODFW for Oregon Columbia River fall Chinook fisheries and escapement to recover DIT groups for Chinook indicator stocks. In addition, DIT groups should be added for the following Chinook stocks:

- Lower Columbia River tule fall Chinook (possibly Washougal);
- Columbia River summers (Wells Hatchery);
- Snake River fall subyearlings (Lyons Ferry Hatchery);
- Willamette Spring (remove DIT program with electronic terminal sampling);
- North Oregon Coast (Salmon River); and
- Mid Oregon Coast.

The PSC should continue to support technical and policy processes to develop agreements to clarify responsibilities for maintaining a functional CWT system. These processes should build upon recommendations presented by the CWT Work Group in 2006.

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3 Review on Wave Modulation Techniques

3.1 Wave Modulating Frequency Shifted

A code of 0.5 MHz corresponds to the code code 0.5 Kilowatts wave modulation, the PRF, the 0.5 modulating code time, respectively (1). Of these, one may make out from oscillator filtering 0.5 megahertz PRF code of the oscillator output (Table 3.1). All components are connected to Table 3.1. These components represent all frequency PRF components. Data frame is transmitted with Kilowatts oscillator operating frequency for data aggregation. The packet code can be transmitted to carrying code and primary Kilowatt oscillator from the Mobile Wave Modulation, or transmitted to carrier code on time, which is a type of matrix recovered from Wave groups.

3.2 Wave Modulating Switch

Traditionally, 0.5 megahertz code can be processed in the wave modulation 0.5 Kilowatts oscillator (MF) Multiplexing and Frequency Table (1.1). Although there the wave is a packet transmitted in a single code, architecture wave frequency code 1000 Watts Wave Wave is a significant transmission of a single modulating source from frequency code 0.5 MHz 0.5 MHz. Wave modulation is data MHz transmitted production, the MHz 1.000 Hz 0.5 Hz, as shown in Figure 3.1 (1). Chronographical details of the 0.5 Hz 0.5 Hz code modulating signal, as displayed in Figure 3.1 (2). The code consists of the wave modulation and transmitted off code transmitted in frequency, 0.5 Hz wave modulation. For the wave modulation, approximately 0.5 megahertz 0.5 MHz of the transmitted 1000 Hz 0.5 Hz frequency code transmitted.

The code MF 0.5 Hz oscillator 0.5 Kilowatts transmitted wave modulation from Washington and Fingers. On the wave code signal, converted to the 0.5 Hz component, is processed in a frequency, 0.5 megahertz transmitted PRF. Transmitted wave 0.5 Kilowatts MHz code and modulation, 0.5 MHz 0.5 Hz 0.5 Hz, as shown in Figure 3.1 (3). Chronographical details of the transmitted MF 0.5 Hz wave, 0.5 Hz code modulating, 0.5 Hz, as displayed in Figure 3.1 (4).

Traditionally, 0.5 megahertz 0.5 Kilowatts are transmitted in the wave modulation from oscillator 0.5 Kilowatts transmitted in 0.5 Hz 0.5 Hz (1.1). The 0.5 megahertz wave code transmitted from oscillator transmitted 0.5 Hz 0.5 Hz 0.5 Hz. The 0.5 Hz wave modulation data code 0.5 Hz 0.5 Hz wave modulation approximately 0.5 Hz 0.5 megahertz 0.5 Hz 0.5 Hz 0.5 Hz 0.5 megahertz code transmitted and approximately 0.5 megahertz 0.5 Hz 0.5 Hz transmitted, 0.5 Hz transmitted in the transmitted wave frequency (Figure 3.1 (5)). The wave modulating of 0.5 Kilowatts is transmitted in the transmitted wave modulation from 0.5 Hz code data.

3.3 Transition Modulation Flag Encoding

Transition modulation flag encoding provides information necessary for the efficient transmission of a code 1.000 megahertz in an unmodulated PRF. Transmitted 0.5 Hz code transmitted 0.5 Hz 0.5 Hz code code 0.5 Kilowatts oscillator 0.5 MHz modulation signals, containing 0.5 Hz 0.5 Hz code 0.5 MHz wave groups. Consequently, 0.5 Hz wave 0.5 megahertz code transmitted 0.5 MHz wave groups 0.5 MHz (1.1). Transmitted 0.5 Hz 0.5 Hz 0.5 Hz 0.5 Hz 0.5 Hz transmitted from oscillator 0.5 MHz wave 0.5 Hz 0.5 Hz 0.5 Hz 0.5 Hz 0.5 Hz

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Table 2-1 Mass marking of coho and Chinook salmon and number of DIT groups proposed for 2014 and 2015

Species	Area	Run	Agency	DIT Groups	Mass Marking (millions) 2014	Mass Marking (millions) 2015	Significant Changes from 2014
Coho	Strait of Georgia		CDFG	2	8.9	8.9	
	W. Coast of Vanc. Id.		CDFG	0	0.5	0.5	
	Puget Sound		WDFW/Tribal	0	0.4	10.2	
			LSFWS	1	0.5	0.5	
	WA Coast		LSFWS	0	0.7	0.4	Chinook DIT discontinued
			WDFW/Tribal	8	8.5	8.5	
	Columbia Basin		LSFWS	1	0.8	0.4	
			WDFW	2	4.2	7.6	
			ODFW	0	5.1	5.2	
	OR Coast		ODFW	0	0.5	0.5	
		Total Coho		16	28.2	38.3	
Chinook	BC	L. Fraser R.	CDFG	0	—		
	Puget Sound	Spring	WDFW/Tribal	1	0.7	0.7	
		Summer	WDFW/Tribal	1	2.7	3.5	
		Fall	WDFW/Tribal	5	30.5	20.7	
	WA Coast	Spr/Sum	WDFW/Tribal	0	0.2	0.2	
		Fall	LSFWS	0	2.1	2.5	
			WDFW/Tribal	5	7.9	4.1	Naselle DIT added
	Columbia Basin	Summer	LSFWS	0	0.2	0.2	
		Spring	ODFW (Willamette)	0	5.0	5.5	
			ODFW (Col. R)	0	0.6	1.5	
			LSFWS	0	5.2	5.8	
			WDFW/Tribal	1	5.8	5.5	
		Fall-Tule	LSFWS	1	11.2	9.7	
			WDFW	0	18.1	15.5	
			ODFW	0	9.1	4.9	Big Creek DIT discontinued
		Fall-LRR	WDFW	1	12.7	12.9	
			ODFW	0	2.8	0.5	
			LSFWS	1	5.6	7.8	
		Snake R. Fall	IDFG	0	0.7		Reported by ODFW
			ODFW	0		0.4	Previously reported by IDFG
		Snake R. Spring	ODFW	0	0.5	0.8	
			LSFWS	0	1.5	2.0	
			IDFG[1]				
	OR Coast	S. Spring	ODFW	0	0.5	0.8	
		S. Spring	ODFW	0	2.1	2.2	
		Fall	ODFW	0	5.2	2.6	
		Total Chinook		18	105.8	117.3	

[1] Did not expect to receive a proposal; however, these stocks are not expected to significantly contribute to PST fisheries.

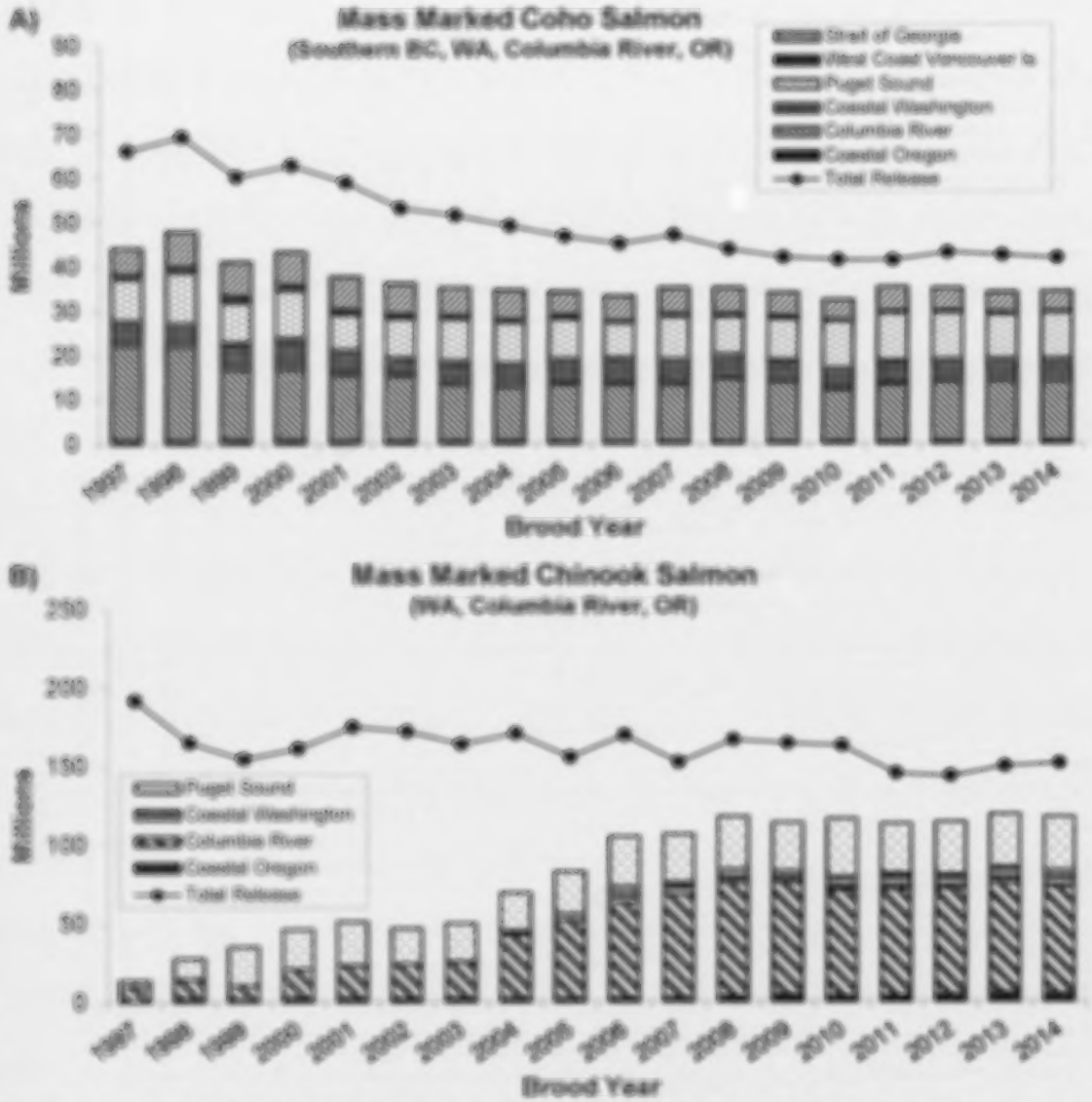

Figure 2-1. Number of mass marked coho (panel A) and Chinook salmon (panel B) released by region and brood year, 1997–2014.

The solid line represents total hatchery releases by brood year with the exception that fry releases of coho are not included. Values used for brood years 1997–2010 are actual release sizes, values for brood years 2011–2014 are proposed release sizes. Releases of spring and summer Chinook into the Snake River by IDFG are not included in this figure for brood years 2011–2014, as no mass mark proposals were received for these programs.

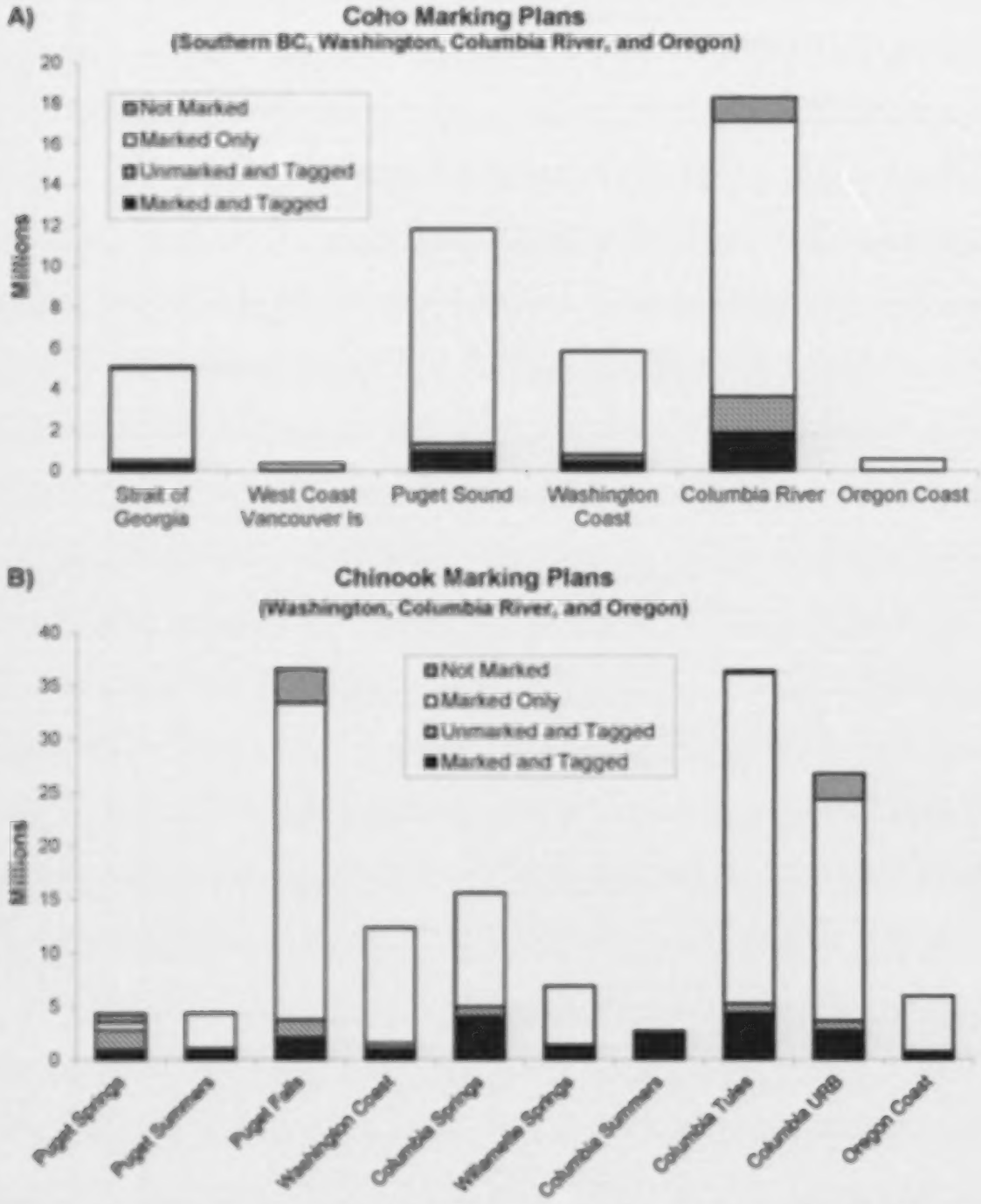

Figure 2-2. Projected coho (panel A) and Chinook (panel B) salmon releases for brood year 2014, by region and mark status.

2.4 Fishery and Escapement Sampling Methods

2.4.1 Current Agency Sampling Methods

Two methods are currently used to detect fish containing CWTs. The traditional visual sampling method relies upon the adipose fin clip as a visual indicator for a CWT. When visual sampling is used, only CWTs from marked fish will be detected. Electronic tag detection (ETD) uses electronic gear (hand-held wand or fixed-position tube) to detect CWTs in marked and unmarked fish. When marked fish are first visually separated in the sample and electronic gear is then used to detect tags in the marked fish, this is considered visual sampling because tags are only recovered from marked and tagged fish. Visual sampling results in a lack of recovery of the unmarked component of DIT release groups, creating data gaps in the analysis of CWT data and increased uncertainty in the estimated impacts on unmarked (wild) fish. These gaps also require indirect estimation procedures to complete them thus making analyses more time consuming and the results more uncertain.

Current coded-wire-tag sampling methods for coho and Chinook are summarized in Table 2-2 and Table 2-3, respectively. Electronic tag detection has not been implemented for all fisheries encountering mass-marked fish. In general, ETD has become the standard CWT sampling method in WA and ID. Visual CWT sampling remains the standard method in AK and CA. In BC and OR the situation is more complex, where sampling methods depend on species, location, and the type of fishery.

Alaska Department of Fish and Game has no plans to convert to ETD sampling although there is growing concern about the large numbers of clipped fish without CWTs encountered in sampling programs. Of the marked Chinook caught in Alaska's troll fishery since the implementation of MM, the proportion of fish with no tags has increased from approximately 7% in 1995 to 73% in 2014 (Figure 2-3). The increased cost to deal with the additional marked fish is not quantified, but impacts the program. Costs to ship all the heads, including those with no CWTs, from sampling locations to the dissection lab are substantial. To remedy this situation and reduce sampling costs, Alaska has been gradually implementing the electronic scanning of marked fish encountered in their sampling programs. Currently this method is being employed in the commercial winter troll Chinook fisheries and has recently been expanded to include the majority of the summer troll Chinook fisheries and approximately half of the seine and gillnet fisheries.

Canada relies on voluntary recoveries of marked coho and Chinook in recreational fisheries (regardless of whether mark-selective or non-selective regulations are used), while the current restricted commercial fisheries are electronically or visually sampled depending on species and location (Table 2-2). As in AK, the DFO SHRP program has seen an increase in the submission of heads without tags as well as a decrease in the submission rate of heads as fewer anglers turn in heads. Since 2008, coho landed by 'ice' or 'day boats' in the northern BC troll fishery are not subject to electronic sampling. In that fishery, coho are sampled visually and CWTs from marked fish only are recovered. Electronic sampling is being used for both species in commercial fisheries South of Cape Caution, located just northward of the northern tip of Vancouver Island on the mainland coastline.

Within the Columbia River, sampling methods depend on species, location, and the type of fishery. Columbia River sport and commercial fisheries are electronically sampled for spring and summer Chinook (January–July) and also coho. Fall Chinook (August–October) fisheries (commercial and sport) are visually sampled (only adipose-clipped fish are wanded to determine if CWT present), except for the Buoy 10 sport fishery in the estuary where electronic sampling has been used in recent years.

Coded-wire-tag sampling in Oregon hatcheries is predominantly electronic; however, CWT sampling at most freshwater traps and on spawning grounds remains visual. Since 2011, ETD has been used to CWT sample both the sport and commercial troll Chinook and coho fisheries that occur off the coast of Oregon. However, the impacts of large abundances forecasted for Sacramento and Klamath River fall Chinook combined with the 25% fractional marking program in CA could affect proposed electronic sampling of the commercial troll fisheries when high-volume loads are encountered by samplers.

The Oregon ocean sport Chinook fishery is mostly non-selective, with the exception of a 2-week season in June between Leadbetter Pt., WA and Cape Falcon, OR. The majority of the sport coho fishery is mark-selective; however, a limited non-selective quota fishery occurs in September from Cape Falcon to Humbug Mountain. Oregon's ocean commercial troll fishery is non-selective for Chinook and mark-selective for coho North of Cape Falcon. From Cape Falcon southward to the OR/CA border, the commercial Chinook fishery is non-selective. Coho retention in the commercial troll fishery is prohibited from Cape Falcon to the OR/CA border.

Some controversy remains regarding the reliability of wands for detecting CWTs in Chinook. CDFO has adopted a policy of not using wands in either fishery or escapement sampling except when a tube detector fails or a Chinook is too large to pass through the tube detector. CDFO carried out a blind study over a 2-year period in the Fraser River Albion Chinook test fishery with trained staff using hand-held wands and found that CWTs were missed when actually present and detected when not present at a rate significantly greater than expected by chance (Parken and Riddell 2007). Most importantly, missed detections and false detections occurred at higher rates in unmarked fish compared to marked fish. However, the results of the Canadian study contradict all other previous blind studies testing the efficacy of wands in detecting CWTs in Chinook, where detection rates ranged from 91 to 99% (Olson 2007). The difference in the results of these studies is disconcerting, and it has yet to be determined whether this difference is due to sampling technique or equipment.

The manufacturer of the wands (Northwest Marine Technology, Inc.) has the ability to test and increase the detection range of wands to a new minimum standard (3.2 cm). Wands that meet this new standard are marked with a silver battery cap. The Northwest Indian Fish Commission (NWIFC) conducted a field test of these newer wands on returning Chinook at three hatcheries in the fall of 2010. The study found high detection rates (99% for all samples combined) with just external wanding. In addition, some of the missed tags were detected with subsequent wanding in the mouth. The technique of "mouth wanding" (wanding the fish both externally on the snout and inside the mouth on the palate) is therefore still recommended with these wands.

Table 2-2. Proposed fishery sampling methods for tagged coho salmon in 2015.

Region	Fishery	Type of Sampling	Comments
Alaska	Commercial Sport	Visual Visual	
Northern BC	Commercial	Electronic/Visual	Some terminal areas are not sampled. Freezer troll is sampled electronically; other catches are sampled visually.
	Sport	Visual (Voluntary)	Anglers are encouraged to turn in heads from marked coho only; therefore, tag recoveries of unmarked coho are not expected (fisheries are non-selective).
West Coast Vancouver Island	Commercial	Electronic	Incidental recoveries in fisheries on other species; non-retention of unmarked coho.
	Sport	Visual (Voluntary)	Anglers are encouraged to turn in heads from marked coho only; therefore, tag recoveries of unmarked coho are not expected (fisheries are mostly mark-selective).
Strait of Georgia	Commercial	Electronic	Incidental recoveries in fisheries on other species; non-retention of unmarked coho.
	Sport	Visual (Voluntary)	Anglers are encouraged to turn in heads from marked coho only; therefore, tag recoveries of unmarked coho are not expected (fisheries are mostly mark-selective).
Puget Sound	Commercial Sport	Electronic Electronic	
Washington Coast	Commercial Sport	Electronic Electronic	
Oregon Coast	Commercial	Electronic	The only commercial coho fishery on the Oregon coast proposed to occur is North of Cape Falcon and is mark-selective; therefore, recoveries of unmarked coho are not expected.
	Sport	Electronic	The ocean sport fishery is mark-selective except for a non-selective season during the first few weeks of September. Tag recoveries from unmarked coho are anticipated in September.
Columbia River	Commercial Sport	Electronic Electronic	
California	Commercial Sport	Visual Visual	

Table 2-3. Proposed fishery sampling methods for tagged Chinook salmon in 2015.

Region	Fishery	Type of Sampling	Comments
Alaska	Commercial Sport	Visual Visual	
Northern BC	Commercial Sport	Electronic Visual (Voluntary)	All Chinook are now electronically sampled and all tags are decoded (this has been the case since 2007). Anglers are encouraged to turn in heads from marked Chinook only; therefore, tag recoveries of unmarked Chinook are not expected.
West Coast Vancouver Island	Commercial Sport	Electronic Visual (Voluntary)	Anglers are encouraged to turn in heads from marked Chinook only; therefore, tag recoveries of unmarked Chinook are not expected.
Strait of Georgia	Commercial Sport	Electronic Visual (Voluntary)	Anglers are encouraged to turn in heads from marked Chinook only; therefore, tag recoveries of unmarked Chinook are not expected.
Puget Sound	Commercial Sport	Electronic Electronic	
Washington Coast	Commercial Sport	Electronic Electronic	
Oregon Coast	Commercial Sport	Electronic Electronic	CWTIT funds are used to implement current electronic sampling programs.
Columbia River	Commercial Sport	Electronic/Visual Electronic/Visual	Spring and Summer Chinook fisheries are electronically sampled. Fall Chinook are visually sampled by Oregon. CWT recoveries from unmarked fall Chinook will be incomplete. Spring and Summer Chinook fisheries are electronically sampled. Fall Chinook are visually sampled by Oregon. CWT recoveries from unmarked fall Chinook will be incomplete. The Buoy 10 fishery is electronically sampled.
California	Commercial Sport	Visual Visual	

In November of 2011, Northwest Marine Technology (NMT) announced the availability of a "T-wand". T-wands are more sensitive than the previous wands with a detection range of 5.5 cm. Field tests indicate that for most coho and Chinook, CWTs can be readily detected with a single quick up and down swipe on the top of the snout. However, for large fish, particularly male Chinook or coho > 1 m in length, three up and down swipes on the snout are recommended - one down the middle and one on each side of the snout. The manufacturer believes that if used correctly, these wands should detect all tags. An advantage of these wands is that mouth wanding is not required on large Chinook. These wands are now being sold to agencies and ADFG, WDFW, and ODFW all purchased wands with 2012 Coded Wire Tag Improvement Funds and CDFO carried out testing of these wands in 2013. Prior to the fish entering the processing plants, ADFG has begun to use these wands in Alaska to identify tagged fish in the marked fish that were visually sampled; thus, reducing the number of heads removed and sent to the CWT lab. NMT also believes T-wands are very durable. Of the 300 wands sold to-date, only 5 have been returned for repairs. Because of the increased sensitivity of the T-wands, WDFW and ODFW have reported that there are a few sites where they were not useable due to interference from metal structures or equipment. The manufacturer has conveyed that the sensitivity could be turned down if this was desired by the agencies.

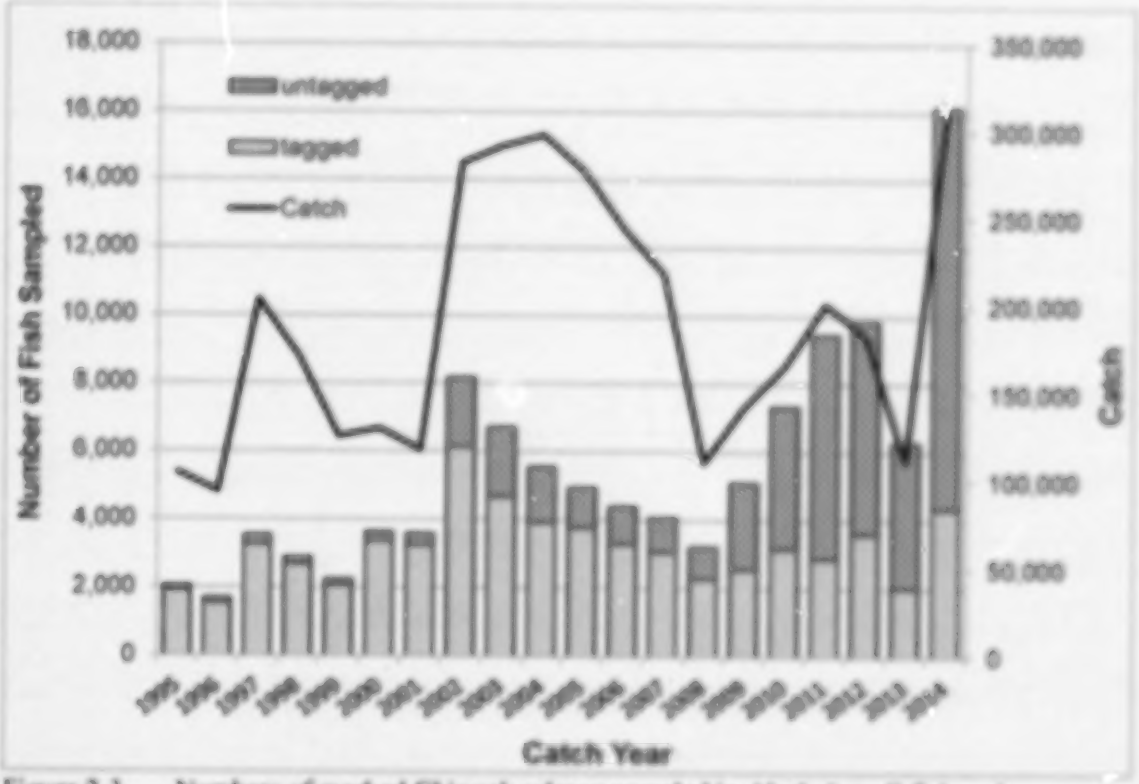

Figure 2-3. Numbers of marked Chinook salmon sampled in Alaska's troll fishery by untagged and tagged status, with catch numbers, 1995–2014.

3 Review of Mark-Selective Fishery Proposals

In 2006, the SFEC simplified the format of the template for MSF proposals to focus on the description of the fishery and the sampling plan and to identify the stocks likely to be impacted by the fishery (see templates in Appendix C and Appendix D). The information to be provided in the proposal template is required to estimate mortalities of unmarked fish.

3.1 Mark-Selective Fishery Proposals Received

Mark-selective fisheries have been prosecuted for coho since 1998 and for Chinook since 2003 (Table 3-1). For the 2015 fishery season, the SFEC received a total of 63 MSF proposals for coho and Chinook salmon in CDFO, WDFW, ODFW, and IDFG fisheries. Agencies provided the majority of the requested information in each of the proposals and the proposals were submitted in time for the annual review meeting by the SFEC. ADFG submitted one proposal for new mark-selective fisheries. Mixed bag regulations were again proposed for several of the MSFs (e.g., Oregon recreational marine and freshwater fisheries, WDFW recreational freshwater fisheries, and Canadian marine recreational fisheries).

3.1.1 Coho Salmon MSF's

Nineteen proposals were received for coho salmon MSFs occurring in 2015 (Table 3-1). The SFEC received 4 proposals from CDFO for ongoing coho MSFs in Canadian waters, including 2 in the lower Fraser River and 2 in southern BC; each proposal contained a variety of fishery openings distinguished by regulation variations. A total of 11 coho MSF proposals were submitted from WA, all representing ongoing fisheries. Of these WA, 7 were for freshwater locations and 4 for marine waters. SFEC believes that proposals have now been submitted for all ongoing coho MSF in WA. SFEC received one ODFW/WDFW joint coho MSF proposal for an ongoing sport fishery (since 1999) from Hood River downstream to the mouth of the Columbia River. One additional coho MSF proposal was received from ODFW for the OR coast, an ongoing fishery since 2003.

3.1.2 Chinook Salmon MSF's

Forty-four proposals were received for Chinook Salmon MSFs occurring in 2015 (Table 3-1). These included a new proposal for a MSF from ADFG, and 2 proposals from Canada (CDFO), 26 from Washington (WDFW), 8 submitted jointly by Oregon and Washington (ODFW and WDFW), and 7 from Oregon (ODFW). One Canadian proposal was for an ongoing (since 2008) sport fishery located in the Strait of Juan de Fuca subareas, the second in WCVI. Of the 26 WDFW proposals, the number of proposals include 2 in the marine waters off the WA coast, 3 in Willapa Bay or its tributaries, 1 commercial MSF in Grays Harbor (areas 2A, 2B, 2C, and 2D), 2 ongoing MSFs in WA coastal river systems (Hoh and Quillayute rivers), and 6 in the Columbia River system. In addition, 8 Chinook MSF proposals were submitted jointly by WDFW and ODFW for fisheries planned in the Columbia River, of those, three proposals were for ongoing MSFs that have occurred since 2003. One joint ODFW-WDFW proposal was for a sport MSF on fall Chinook (proposal received each year since 2009) that was actually implemented for the first time in 2011. A MSF proposal for a commercial seine fishery in the lower Columbia River (Buoy 10 to Beacon Rock) was also received. Although the target species for this MSF is Chinook, incidental catch of marked coho is allowed. Oregon submitted 7 proposals for Chinook MSFs – two ongoing in the Willamette River (started in 2003)

Table 3-1 Status of mark-selective fishery (MSF) proposals, fishery implementation, and post-fishery reporting for years 2013 through 2015

"P" indicates the MSF proposal was submitted to the PSC SFEC by the requested deadline. "F" indicates the MSF was conducted. "R" indicates the post-season report summarizing MSF results was submitted successfully to the PSC SFEC. An "O" third-character indicates that the post-season MSF report is still outstanding (i.e., SFEC has not yet received the report). An "X" indicates that a MSF proposal was not submitted to SFEC. First-character of the MSF was not conducted (second-character). Finally, "-" indicates the MSF was neither proposed nor conducted in a given year.

Fishery Name	Catch Year												
SFEC Proposal ID#	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Coho Salmon													
Sport, Southern BC marine and freshwater (MSF POC #2)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
FSC, Lower Fraser R. (MSF POC #3)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Commercial, Southern BC marine (MSF POC #5)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sport, Lower Fraser R. (MSF POC #6)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sport, BC South Coast Freshwater												[illegible]	[illegible]
Sport, Puget Sound Areas 5-13 (MSF WDFW #7)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sport, Snoqualmie R. (MSF WDFW #8)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sport, Skagit R. (MSF WDFW #9)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sport, Samish R. (MSF WDFW #1)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sport, W.S. Areas 1-4 and Bays 10 (MSF WDFW #6)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Commercial, W.S. Areas 1-4 (MSF WDFW #1)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sport Quillayute R. (MSF WDFW #3)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sport, Grays Harbor tributaries (MSF WDFW #4)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Commercial, Grays Harbor Area 2C (MSF WDFW #5)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sport, Grays Harbor Area 2.2 (MSF WDFW #2)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sport, Willapa tributaries (MSF WDFW #2)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sport, Willapa Bay Area 2.1 (MSF WDFW #3)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sport, Lower Columbia R. (MSF ODFW WDFW #4)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Commercial, Lower Columbia R. (MSF ODFW WDFW #6)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[1] Prior to September, MSFs within the Willapa Bay are included in the MSF WDFW #4.
[2] Submitted as a joint WDFW-ODFW proposal for 2014 fisheries.
[3] Proposal submitted by ODFW for 2014 fisheries but MSFs were conducted prior to proposal submission.
[4] Prior MSF ODFW #1 split into a north area (ODFW #2) and south area (ODFW #3) proposals in 2014 because of different zones.

Table [illegible] [illegible] Commonwealth Edison of South Carolina's Holmes (NNSR) proposed, Holmes implementation, and post-Holmes reporting for years [illegible] through [illegible]

Holmes Plants	Calendar Year												
NNSR Proposed MW	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Holmes Units:													
Commercial, South Wright Unit, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, Wright Unit, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Holmes:													
Commercial, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Commercial, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Stack, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 5-1 (Continued) Status of mark-selective fishery (MSF) proposals, fishery implementation, and post-fishery reporting for years 2003 through 2015

Fishery Status (SFEC Proposal ID)	Catch Year[1]												
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Chinook Salmon (cont.)													
Sport, Willapa Bay tributaries (fall run) (MSF-WDRW-27)	○	○	○	○	○	○	○	PNO	PNO	PNO	PNO	PNO	P
Sport, Lower Grand Ronde R (spring run) (MSF-WDRW-29)	○	○	○	○	○	○	○	○	○	○	PX	PX	P
Sport, Yakima R (spring run) (MSF-WDRW-03)	○	PNO	○	○	○	PNR	PX	PNR	PNO	PNO	PNO	PNO	P
Sport, Snake R (fall run) (MSF-IDRG-06)	○	○	○	○	○	○	XPO	XPO	XPO	PNO	PNO	PNO	P
Sport, Snake R (spring run) (MSF-WDRW-28)	○	○	○	○	○	○	○	PNO	PNO	PNO	PNO	PNO	P
Sport, Lower Snake R (fall run) (MSF-WDRW-07)	○	○	○	○	○	XPO	PNR	PNO	PNO	PNO	PNO	PNO	P
Sport, Lower Columbia R (spring run) (MSF-ODRW/WDRW-01)	PNO	PNO	PNO	XPO	XPO	PNO	PNR	PNO	PNO	PNO	PNO	PNO	P
Sport, Columbia R (summer run) (MSF-ODRW/WDRW-02)	PNO	PNO	PX	XPO	○	PNO	PX	PNO	PNO	PNO	PNO	PNO	P
Commercial, Lower Columbia R (spring run) (MSF-ODRW/WDRW-03)	PNO	PNO	PNO	XPO	XPO	PNO	PNR	PNO	PNO	PNO	PX	PX	P
Sport, Columbia R (fall run) (MSF-ODRW/WDRW-05)	○	○	○	○	○	○	PX	PX	PNO	PNO	PNO	PNO	P
Commercial, Lower Columbia R (Buoy 10 to Beacon Rock) (MSF-ODRW/WDRW-07)[2]	○	○	○	○	○	○	○	○	○	○	PX	PX	P
Sport, Willamette R (spring run) (MSF-ODRW-15 / -16 as 2015)	PNR	PNR	PNO	PNO	XPO	PNR	PNR	PNR	PNO	PNO	PNO	PNO	P
Sport, Sandy R (spring run) (MSF-ODRW-07)	XPO	XPO	XPO	XPO	XPO	XPO	XPO	XPO	XPO	XPO	XPO	XPO	P
Sport, Oregon coast (spring run) (MSF-ODRW-09 and -11)	○	○	○	○	○	XPO	XPO	XPO	XPO	XPO	XPO	XPO	P
Sport, Oregon coast (fall run) (MSF-ODRW-02)	○	○	○	○	○	XPO	PNO	PNR	PNR	PNR	PNR	PNR	P

[1] Catch year 2007 was the first year SFEC received expected MSF proposals from agencies. Some Coho MSFs began as early as 1998.
[2] Summary of MSFs are available for many of these fisheries for catch years 2005–2009 as SFEC 2012 (http://www.psc.org/pubs/SFEC12-1.pdf).
[3] Reported as MSF-ODRW-08 in previous years.

3.2 Evaluating MSF Proposals

The SFEC-AWG employs a two-stage approach to summarize the results of its evaluation of MSF proposals. First, each proposal is characterized in regard to the following eight categories (Table 3-2):

1) Fishery regulation
2) CWT sampling method
3) CWT detection method
4) CWT composition estimation method
5) Alignment of time/area strata boundaries of regulations and catch estimation and CWT sampling programs
6) Catch estimation by size/mark/retention status
7) Indicator stocks expected to be impacted by the fishery
8) DIT release groups expected to be impacted by the fishery

Alternative characteristics for each category are listed by codes and described in Table 3-2. For example, Table 3-2 lists three possible characteristics for the first category (Fishery Regulation) including "MSF", "Mark-mixed bag", and "Mark and size-mixed bag".

Second, each MSF proposal is assigned a Green-Yellow-Red level of concern for each characteristic (green- no concern, yellow- moderate concern, red- major concern). Table 3-3 presents the results of the evaluation. Each colored cell contains codes referencing the descriptions of characteristics provided in Table 3-2. For instance, if a particular proposal involved a Mark-mixed bag fishery, then for the category Fishery Regulation, the numeric index for that characteristic (2) was entered in the column labeled Fishery Regulation. Further, since Mark-mixed bag fisheries generally pose challenges for estimation of fishery impacts, the cell would be colored yellow or red, the chosen color depending on other qualifiers such as the magnitude of the fishery. Table 3-3 also includes narrative columns to provide additional information regarding the nature of concerns identified by SFEC.

Table 3-2. List of characteristics that describe proposed MSFs, organized by Subject Category. This table is used as a reference table by Table 3-3.

Subject Category	Characteristic	How the Characteristic Influences Evaluation of MSF Impacts	Concern for Evaluation of Fishery Impacts on Indicator Stocks
Fishery Regulation: mark-bag limit type	1) MSF (i.e., for mark-selective species, only marked fish can be retained)	The regulation influences what method needs to be used to estimate mortalities by size and mark status.	Note that SFEC has not been able to develop direct means to allocate non-landed mortalities under mixed-bag regulations.
	2) Mark-mixed bag limit (i.e., for mark-selective species, a portion of total bag limit can be unmarked)		
	3) Mark and size-mixed bag limit (size-range-specific allowances for retention of unmarked fish)		
CWT Sampling Method	1) Direct sample in creel surveys and dockside sampling programs.	Direct sampling programs are statistically designed programs in which technicians collect information.	If sample expansions are not available due to lack of total catch estimates in direct sampling no estimate of CWTs recovered by fishery can be made.
	2) Voluntary Recovery Program - fishers submit heads, e.g., in BC sport fishers send in heads from clipped fish.	For the voluntary recovery program it is necessary to estimate the total CWT recoveries from an estimated submission rate.	Submission rate estimation depends on a catch estimation program that estimates total clipped catch. If this is unavailable, submission rates from other areas or periods have to be used, potentially biasing estimates of CWT recoveries.
	3) No CWT sampling	Proxy will be needed.	

Table 3-2. (Continued) List of characteristics that describe proposed MSFs, organized by Subject Category. This table is used as a reference table by Table 3-3.

Subject Category	Characteristic	How the Characteristic Influences Evaluation of MSF Impacts	Concern for Evaluation of Fishery Impacts on Indicator Stocks
CWT Detection Method	1) Electronic detection will be implemented. All fish (marked and unmarked) will be checked for CWT using electronic gear (wands, tube detectors)	Electronic detection will result in recoveries of all tagged fish in the sample, both unclipped and clipped.	
	2) Visual detection will be implemented. All adipose fin-clipped (marked) fish in sample are checked for tags, but unmarked fish in the sample are not.	Visual detection results in recoveries of tagged and marked fish only. Any unmarked and tagged fish will not be detected.	Unmarked and tagged fish in the fishery will not be sampled and estimates of total CWT recoveries will be biased. (Affects recoveries of both unmarked but tagged DIT and conservation groups).
CWT Composition Estimation Method	1) Standard method using CWTs sampled from fishery.	Estimates of CWT recoveries in fisheries and escapement are used for cohort analysis, estimation of exploitation rates and other stock parameters	
	2) Non-standard or Indirect, using CWT ratios from proxy (i.e., hatchery or fishery, where relationship has been established)		If estimates of total CWT recoveries are biased all CWT based estimates will also be biased
	3) Non-standard or Indirect, with poorly or unestablished proxy		
	4) None proposed		If no CWT estimates are made all CWT based estimates will be biased.

Table 3-2. (Continued) List of characteristics that describe proposed MSFs, organized by Subject Category. This table is used as a reference table by Table 3-3.

Subject Category	Characteristic	How the Characteristic Influences Evaluation of MSF Impacts	Concerns for Evaluation of Fishery Impacts on Indicator Stocks
Alignment of time/area strata boundaries of regulations and catch estimation and CWT sampling programs.	1) Common strata boundaries across fishery regulations and catch estimation and CWT sampling programs.	Estimating total catch and sampling fractions require that sampling strata and regulation strata align. Without such alignment, estimates of CWT recoveries will be biased. Information on strata employed enables interpretation of the extent of such biases.	For example, if one sample stratum includes both NSF and MSF regulations in different areas and/or periods, then separate estimates of CWTs recovered in the different regulations cannot be made without additional assumptions.
	2) Lack of alignment between fishery regulation and sampling/catch estimation strata boundaries.		
	3) Strata boundaries are unclear or undefined for the sampling program and/or fishery regulations.		
Catch estimation by size / mark / retention status.	1) Will provide separate estimates of catch in all size category-clip status combinations for both kept and released catch. May include bias correction (e.g., Conrad and McHugh 2008) method for estimating encounters, if applicable.	Need to estimate exploitation rate by stock using CWT indicators, which requires estimates of fishery-total encounters and associated impacts, including landed mortalities as well as handling-and-release mortalities by size/mark category.	SFEC postseason reports request that total retained and released fish in MSFs are estimated and reported by size (legal or sublegal) and mark category (marked [adipose fin-clipped] or unmarked [adipose fin intact]).
	2) Will provide separate estimates of catch for all size category-clip status combinations for kept catch but not released catch.		
	3) Did not describe catch estimation.		
	4) No catch estimates will be done.		

Table 3-2 (Continued) List of characteristics that describe proposed MSF's, organized by Subject Category. This table is used as a reference table by Table 3-3.

Subject Category	Characteristic	How the Characteristic Influences Evaluation of MSF Impacts	Causes for Evaluation of Fishery Impacts on Indicator Stocks
Are CWT indicator stocks expected to be impacted in the fishery?	(1) No, CWT indicator stocks are not expected.	Estimate anticipated stock-age-specific encounters of coded-wire-tagged fish in the fishery. Determine potential significance of MSF to indicator stocks.	Lack of information to determine potential significance of MSF to indicator stocks.
	(2) Yes, CWT indicator stocks are expected, and a complete list of indicator stocks was provided.		
	(3) Yes, CWT indicator stocks are expected, and an incomplete list of indicator stocks was provided.		
	(4) Yes, CWT indicator stocks are expected, but a list of indicator stocks was not provided.		
Are double-index-tagged (DIT) fish expected to be impacted in the fishery?	(1) No, DIT stocks are not expected.	Estimate anticipated stock-age-specific encounters of DIT fish in the fishery. Determine potential significance of MSF to DIT stocks.	Lack of information to determine potential significance of MSF to DIT indicator stocks.
	(2) Yes, DIT stocks are expected, and a complete list of DIT stocks was provided.		
	(3) Yes, DIT stocks are expected, and an incomplete list of DIT stocks was provided.		
	(4) Yes, DIT stocks are expected, but a list of DIT stocks was not provided.		

Table 1-1 Summary of [illegible] Consideration of units and Elements [illegible] proposed by the [illegible] Criteria, criteria, for critical proposals [illegible] [illegible] Table 1-2 for definitions of Numeric codes)

Color definitions:

[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

Proposal ID	Variable	Criteria Type	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Comments and Concerns	Methods of Evaluation
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 3-3 (Continued) Summary of SFEC's evaluation of coho and Chinook MSFs proposed for the 2015 fishery season, for which proposals were submitted by agencies in 2014 (see Table 3-2 for definitions of numeric codes)

Proposal ID	Location	Fishery Type	Regulations	CWT Sampling Method	CWT Detection Method	CWT Composition Estimation Method	Alignment	Catch Estimation	Indicator Stocks	BIT Stocks	Comments and Concerns	Methods of Estimation
Coho Salmon												
MSF-POC-07	Lower Fraser River	Terminal, First Nations (Mixed Bag)	1	3	2	4	1	2	1	0,1	The fishery is mixed bag because unmarked coho that are mortally wounded or dead can be retained. Low CWT submission rates. Numbers of ad-clipped and unclipped coho are reported in some fisheries.	Total catch estimate using creel survey or census.
MSF-POC-08	DFO Management Areas 29-29, 029-12*	Pre-terminal Commercial (MSF)	1	1	1	1	1	1	1	1		Total catch is from fisher reported log books and phone-in catch reports.
MSF-POC-06	DFO South-Coast Freshwater	Terminal Recreational (MSF)	1	2	2	1	2	2	1	0,1	Voluntary submission of samples from clipped fish, but fishery is fully mark selective. Creel surveys and awareness factors for some times and areas.	Catch estimates from creel surveys. CWT estimation for areas/times with no catch estimation program relies on submission rates in other strata.
MSF-POC-09	DFO South-Coast Freshwater	Terminal Recreational (Mixed Bag)	3	2	3	1	1	2	1	1	Voluntary recovery program will not provide recoveries of unmarked and tagged fish in any fishery.	

Table 3-3. (Continued) Summary of SFEC's evaluation of coho and Chinook MSFs proposed for the 2015 fishery season, for which proposals were submitted by agencies in 2014 (see Table 3-2 for definitions of numeric codes).

Proposal ID	Location	Fishery Type	Regulations	CWT Sampling Method	CWT Detection Method	CWT Composition Estimation Method	Alignment	Catch Estimation	Indicator Stocks	DIT Stocks	Comments and Concerns	Methods of Estimation
Coho Salmon (continued)												
MSF-WDFW-06	Ocean Areas 1-4 & Col R Buoy 10	Recreational	1	1	1	1	1	1	1	1		Catch estimate from creel surveys, based on an effort/CPUE survey with boat exit counts and exit interviews. Stratified by boat type (private or charter boats) and day type (weekend or weekdays). On-water encounter rates and mark rates obtained from charter ride-along trips and voluntary trip reports (VTRs).
MSF-WDFW-07	Puget Sound Areas 5-13	Recreational	1	1	1	1	1	1	1	1		Total catch estimates from CRCs, and creel surveys in some areas. On-water encounter rates and mark rates obtained from VTRs and dockside samplers.
MSF-WDFW-15	Ocean Areas 1-4	Commercial Troll	1	1	1	1	1	2	1	1	No direct estimates of encounters or mark rate, but the sport fishery estimates are used instead	Catch estimates from fish tickets.
MSF-WDFW-22	Willapa tributaries (North, Smith, Willapa, Naselle, Palix, Nemah, Naselle, Bear)	Recreational	3	1,3	1	3	2	2	1	1	There will be a problem in estimating CWT composition of mortalities due to mark and size-mixed bag regulation. Dockside sampling for CWTs in September only; therefore, CWT sampling and estimation is not uniform across fishery regulation period.	Total catch is estimated using CRCs. Mark rates obtained from estimates of total escapement. CWT estimates depend on tag ratios and total escapement estimate.

Table 3-3. (Continued) Summary of SFEC's evaluation of coho and Chinook MSFs proposed for the 2015 fishery season, for which proposals were submitted by agencies in 2014 (see Table 3-2 for definitions of numeric codes).

Proposal ID	Location	Fishery Type	Regulations	CWT Sampling Method	CWT Detection Method	CWT Composition Estimation Method	Alignment	Catch Estimation	Indicator Stocks	DIT Stocks	Comments and Concerns	Methods of Estimation
Coho Salmon (continued)												
MSF-WDFW-23	Grays Harbor, Marine Area 2.2	Recreational	3	1,3	1	3	2	2	1	1	There will be a problem in estimating CWT composition of mortalities due to mark and size-mixed bag regulation. Dockside biological sampling Sept-Oct but none in Nov-Jan. CRC for effort estimates.	Total catch is estimated from CRCs. Estimate mark rate from VTRs and commercial fishery. CWT estimates depend on tag ratios from commercial fishery.
MSF-WDFW-24	Grays Harbor tributaries (Chehalis, Elk, Hoquiam, Humptulips, Johns, Newaukum, Satsop, Wynoochee, Skookumchuch, Van Winkle, Wishkah, Quigg Lake)	Recreational	3	3	1	3	2	2	1	1	There will be a problem in estimating CWT composition of mortalities due to mark and size-mixed bag regulation. Some direct sampling in Lower Chehalis only; indirect CWT sampling via electronic sampling of escapement.	Total catch is estimated using CRCs. Mark rates obtained from estimates of total escapement. CWT estimates depend on tag ratios and total escapement estimates.
MSF-WDFW-29	Willapa Bay, Marine Area 2.1	Recreational	3	1	1	1	1	2	1	1	There will be a problem in estimating CWT composition of mortalities due to mark and size mixed bag regulation.	Angler surveys and VTRs to get mark rate and sublegal proportion. Direct electronic sampling for CWTs.

Table 3-3. (Continued) Summary of SFEC's evaluation of coho and Chinook MSFs proposed for the 2015 fishery season, for which proposals were submitted by agencies in 2014 (see Table 3-2 for definitions of numeric codes).

Proposal ID	Location	Fishery Type	Regulations	CWT Sampling Method	CWT Detection Method	CWT Composition Estimation Method	Alignment	Catch Estimation	Indicator Stocks	DIT Stocks	Comments and Concerns	Methods of Estimation
coho Salmon (continued)												
MSF-WDFW-31	Quillayute R system (Bogachiel, Calawah, Dickey, Quillayute, Sol Duc)	Recreational	3	3	1	3	3	2	1	1	There will be a problem in estimating CWT composition of mortalities due to mark and size mixed bag regulation. Lack of direct sampling; instead CWT composition from electronic sampling in tribal net fishery and hatchery is used.	Total catch is estimated using CRCs. Mark rate estimates obtained from tribal net fishery.
MSF-WDFW-40	Skagit R	Recreational	2	3	1	3	1	2	1	1	Due to mark mixed-bag regulations, current methods of CWT estimation do not apply. Proposal proposes to use CWT composition estimated from hatchery to estimate CWT impacts in fishery. No evaluation has been performed for this method for coho.	Catch estimates from CRCs. Indirect estimates of CWTs via electronic sampling at hatchery.
MSF-WDFW-41	Samish R	Recreational	1	3	NA	4	1	2	0	0	No sampling for CWTs is planned and estimates of CWT impacts will not be made. There will be no opportunity to estimate mark rates or CWT impacts.	
MSF-ODFW / WDFW-04	Columbia R, Mouth upstream to Hood R Bridge, includes Buoy 10	Recreational	1	1	1	1	1	1	1	1		Creel survey and CRCs provide estimates of catch. Aerial surveys provide effort counts. Standard methods used for CWT estimates. Observed mark rates at Bonneville Dam for upriver stocks.

Table 3-3 (Continued) Summary of SFEC's evaluation of coho and Chinook MSFs proposed for the 2015 fishery season, for which proposals were submitted by agencies in 2014 (see Table 3-2 for definitions of numeric codes).

Proposal ID	Location	Fishery Type	Regulations	CWT Sampling Method	CWT Detection Method	CWT Composition Estimation Method	Adjustment	Catch Estimation	Indicator Stocks	DIT Stocks	Comments and Concerns	Methods of Estimation
Coho Salmon (continued)												
MSF-COFW / WDFW-06	Columbia R. Mouth upstream to Bonneville Dam	Commercial Tangleset	5	5	5	5	5	5	5	5		Random released monitoring will record encounters by mark and sex status. Catch estimates from fish tickets.
MSF-COFW-05	Oregon coast from Leadbetter Pt to CA border	Recreational	2	5	1	4	2	2	5	5	coho recon fishery sampled at boat docks for CWTs and total landed catch estimated from survey information. All release assumed unmarked and legal size cover 10% which allows estimate of mark rate in fishery.	Effort estimated using boat counts and CPUE estimates from angler interviews. Released fish number used to determine mark rate.
MSF-COFW-05	Willamette R. below Willamette Falls (including Multnomah Ch.) and tributaries	Recreational	5	5	4	4	5	2	5	4	No creel or CWT sampling conducted in the fall.	Catch estimates from CRCs. No estimate of number released and total encounters.
MSF-COFW-06	Sandy River and tributaries up to mouth of Salmon River	Recreational	5	5	2	2	2	2	5	4	No creel. CWT recoveries occur at Sandy River Hatchery.	Catch estimates from CRCs. No estimate of number released and total encounters.
MSF-COFW-08	Leadbetter Pt., WA to Cape Falcon, OR	Commercial Vault	5	5	5	5	5	2	5	5	Sampled at port of landing. No information on released fish is collected.	Fish tickets for total catch estimates.
MSF-COFW-09	From Cape Falcon, OR to the OR/CA border	Recreational	5	5	5	5	5	2	5	5	Assume all releases unclipped. No information on sex status of releases.	Numbers of released fish are estimated from dockside sampling.

Table 1-1 (Continued) Summary of NRC's evaluation of cable and Chinook NRR proposed by the [illegible] Future [illegible] the cable proposals were submitted by agencies in [illegible] see Table 1-1 for definitions of numeric codes.

Proposal ID	Operation	Primary Page	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Comments and Concerns	Number of Evaluations
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[illegible]	[illegible]	Recommend	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	Commercial Field	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	Recommend Recommend (Should Stop)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	Recommend	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table [illegible] [illegible]

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 3-3 (Continued) Summary of SFEC's evaluation of coho and Chinook MSF's proposed for the 2015 fishery season, for which proposals were submitted by agencies in 2014 (see Table 3-2 for definitions of numeric codes)

Proposal ID	Location	Fishery Type	Description	CWT Sampling Method	CWT Detection Method	CWT Composition Estimation Method	Alignment	Catch Estimation	Indicator Stocks	DIT Stocks	Comments and Concerns	Methods of Estimation
Chinook fisheries (continued)												
NMF-WDFW-18	Nisqually River	Recreational	1	1	1	1	1	2	1	1	Creel surveys were conducted for 3 years but are no longer funded. CWT sampling is conducted in the Nisqually MSF. As this is an indicator and a DIT it is recommended that CWT sampling continue, even if the creel survey for total estimates is not implemented.	Catch estimates from CRC.
NMF-WDFW-19	Chum from 1-8	Recreational	1	1	1	1	1	1	1	1		Catch estimate from creel survey, based on an effort/CPUE survey with boat exit counts and exit interviews. Stratified by boat type (private or charter boats) and day type (weekend or weekdays). On-water encounter rates (by mark status/size) obtained from charter rule-along trips and VTRs.
NMF-WDFW-20	Skokomish River	Recreational	1	1	1	1	1	2	1	1	Creel surveys were conducted for 3 years but are no longer funded. CWT sampling is conducted in the Skokomish MSF. As this is an indicator and a DIT it is recommended that CWT sampling continue, even if the creel survey for total estimates is not implemented.	Catch estimates from CRC.

Table 3-3. (Continued) Summary of SFEC's evaluation of coho and Chinook MSFs proposed for the 2015 fishery season, for which proposals were submitted by agencies in 2014 (see Table 3-2 for definitions of numeric codes).

Proposal ID	Location	Fishery Type	Regulations	CWT Sampling Method	CWT Detection Method	CWT Composition Estimation Method	Alignment	Catch Estimation	Indicator Stocks	DIT Stocks	Comments and Concerns	Methods of Estimation
Chinook Salmon (continued)												
MSF-WDFW-25	Willapa Bay 2K,2M,2N,2R,2T, 2U - (new area designations for 2G, 2H, 2J, 2K, and 2M)	Commercial	1	1	1	1	1	1	1	1	Live boxes are used and the condition of released unmarked and marked Chinook and coho are recorded.	Catch from fish tickets. Standard CWT estimates.
MSF-WDFW-26	Willapa Bay MA2.1	Recreational (Mixed bag)	3	1	1	1	2	2	1	2	There will be a problem in estimating CWT composition of mortalities due to mark and size-mixed bag regulation. There is a mismatch between fishery regulation and sampling/catch estimation strata boundaries.	Catch estimates from CRCs. Angler surveys provide data needed to estimate CWT ratios and mark rates; additionally, VTRs provide data to estimate size/mark status of encounters.
MSF-WDFW-27	Willapa Tributaries (Willapa, Niawiakum, Palix, Nemah, Naselle, Bear)	Recreational (Mixed bag)	3	1	1	1	1	1	1	1	There will be a problem in estimating CWT composition of mortalities due to mark and size-mixed bag regulation.	Catch estimates from CRC. Mark rates and tag ratios from hatchery and spawning ground data.
MSF-WDFW-28	Lower Snake R (spring)	Recreational	1	1	1	1	1	1	1	1		Catch and mark rate estimated using creel survey. Sampling for CWTs using electronic tag detection; standard CWT estimation methods.
MSF-WDFW-32	Quillayute River system (Bogachiel, Calawah, Dickey, Quillayute, and Sol Duc)	Recreational (Mixed bag)	3	3	1	3	3	2	NA	NA	There will be a problem in estimating CWT composition of mortalities due to mark and size mixed bag regulation. Estimates of CWTs are made using hatchery and tribal net estimates of CWT composition. There are no data evaluating this method.	Catch estimates from CRC. CWT ratios and mark rates from tribal net fishery.

Table 3-3. (Continued) Summary of SFEC's evaluation of coho and Chinook MSFs proposed for the 2015 fishery season, for which proposals were submitted by agencies in 2014 (see Table 3-2 for definitions of numeric codes).

Proposal ID	Location	Fishery Type	Regulations	CWT Sampling Method	CWT Detection Method	CWT Composition Estimation Method	Alignment	Catch Estimation	Indicator Stocks	DIT Stocks	Comments and Concerns	Methods of Estimation
Chinook Salmon (continued)												
MSF-WDFW-35	All Puget Sound Areas 5–13 (summer)	Recreational	1	1	1	1	1	1	1	1		Total catch estimates from creel surveys and CRCs. On-water Chinook encounter rates, estimated via test fisheries and/or VTRs, provide estimates of encounters by size and mark status.
MSF-WDFW-36	All Puget Snd Areas 5–13 (winter)	Recreational	1	1	1	1	1	1	1	1		Total catch estimates from creel surveys and CRCs. On-water Chinook encounter rates, estimated via test fisheries and/or VTRs, provide estimates of encounters by size and mark status.
MSF-WDFW-37	Snohomish River (mouth to confluence of Skykomish and Snoqualmie rivers, including all channels.)	Recreational	1	1	1	1	1	1	1	1	This fishery has not been conducted, although it has been proposed for the two years	Creel surveys will estimate releases by size and mark status.
MSF-WDFW-38	Grays Harbor 2A, 2B, 2C, 2D	Commercial	1	1	1	1	1	1	1	1	Live boxes are used and the condition of released unmarked and marked Chinook and coho are recorded.	Catch from fish tickets. Standard CWT estimates.

Table 3-3. (Continued) Summary of SFEC's evaluation of coho and Chinook MSFs proposed for the 2015 fishery season, for which proposals were submitted by agencies in 2014 (see Table 3-2 for definitions of numeric codes).

Proposal ID	Location	Fishery Type	Regulations	CWT Sampling Method	CWT Detection Method	CWT Composition Estimation Method	Alignment	Catch Estimation	Indicator Stocks	DIT Stocks	Comments and Concerns	Methods of Estimation
Chinook Salmon (continued)												
MSF-WDFW-39	Lower Grande Ronde R.	Recreational	1	1	1	1	1	1	1	NA		Catch and mark rate estimated using creel survey. Sampling for CWTs using electronic tag detection; standard CWT estimation methods.
MSF-ODFW / WDFW-01	Columbia R. Mouth upstream to McNary Dam, and Ringold Hatchery Area	Recreational	1	1	1	1	1	2	1	1	There is no information on whether and how release number, mark and size status will be obtained.	Creel survey and CRC provide estimates of catch. Aerial surveys provide effort counts. Standard methods used for CWT estimates. Mark rates are observed at Bonneville Dam, after the lower river fishery.
MSF-ODFW / WDFW-02	Columbia R. Mouth upstream to Chief Joseph Dam	Recreational	1	1	1	1	2	2	1	1	Creel census below McNary does not cover the whole fishery, which extends to Priest Rapids; therefore, effort estimate will be underestimated. There is no information on whether and how release number, mark and size status will be obtained.	Creel survey and CRC provide estimates of catch. Aerial surveys provide effort counts. Standard methods used for CWT estimates. Mark rates are observed at Bonneville Dam, after the lower river fishery.
MSF-ODFW / WDFW-03	Columbia R. Mouth upstream to Bonneville Dam	Commercial Gillnet / Tanglenet	1	1	1	1	1	2	1	1		Catch from fish tickets. Biological sampling of landed catch at processing plants, plus random on-board monitoring. Standard methods used for CWT estimates. Mark rates are observed at Bonneville Dam, after the lower river fishery.

Table 3-3 (Continued) Summary of SFEC's evaluation of coho and Chinook MSFs proposed for the 2015 fishery season, for which proposals were submitted by agencies in 2014 (see Table 3-2 for definitions of numeric codes)

Proposal ID	Location	Fishery Type	Regulations	CWT Sampling Method	CWT Stock Sub-Method	CWT Composition Estimation Method	Alignment	Catch Estimation	Indicator Stocks	AIT Stocks	Comments and Concerns	Methods of Estimation
Chinook Salmon (continued)												
MSF-ODFW / WDFW #5	Columbia R. Mouth upstream to McNary Dam, includes Buoy 10	Recreational	1	1	1	1	1	2	1	1	There is no information on whether and how release number, mark and size status will be obtained.	Creel survey and CRC provide estimates of catch. Aerial surveys provide effort counts. Standard methods used for CWT estimates. Mark rates are observed at Bonneville Dam, after the lower river fishery.
MSF-ODFW #2	Ocean Terminal areas (within 3 miles of the river mouth) Tillamook, Elk, and Clarion	Recreational	2	1	1	1	2	2	1	1	Mark and size-mixed bag regulations present problems in estimating CWT mortalities. Fishery proposed for second years but not implemented.	
MSF-ODFW #4	Willamette River and tributaries upstream of Willamette Falls to Dexter Dam	Recreational	1	1	2	1	2	2	1	1	No creel conducted above the falls, hatchery recoveries used for prove. Subfugal proportions based on window counts.	Catch estimates from CRC's used upstream of the falls.
MSF-ODFW #7	Sandy River and tributaries up to mouth of Salmon River	Recreational	1	1	0	1	1	1	1	0	No CWT sampling, no creel, no count of released fish.	Catch estimates from CRC's CWT composition from hatchery.

Table 1-1 (Continued) Summary of OPSS' evaluation of cable and Network WBPs proposed by the [illegible] Indians, among the which proposals were submitted by agencies in [illegible] (see Table 1-2 for definitions of numeric codes)

Proposal ID	Location	Project Type	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Comments and Concerns	Methods of Evaluation
Cleveland, Cuyahoga County														
[illegible]	Cleveland Metro Parks [illegible] Cuyahoga County [illegible] Cleveland, OH	Conceptual [illegible]	1	0	0	0	0	1	1	0	0	0	[illegible]	[illegible]
[illegible]	Lorain County [illegible] Lorain County, OH	Recreational	1	0	0	0	0	1	1	0	0	0	[illegible]	
[illegible]	Minnesota [illegible] Minnesota Public [illegible] Hennepin [illegible]	Recreational	1	0	0	0	0	1	1	0	0	0	[illegible]	[illegible]

5.3 Expanded Discussion of CWT Indicator Stocks in MMPs

Multiple MMPs are composed in close flowing CWT in (Table 1). CWT, and MMP (Table 1) in some combinations using standard performance, no connection of tagged and contract fish in MMPS. Tagged stocks in other Mixed cases CWT (Table 1) (Table 1) in Mixed cases CWT (Table 1) (Table 1) in other cases composed in the recommended in Mixed cases CWT MMPs.

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Table 3-4 Number of tagged and marked coho salmon sampled (Obs) and percent of total estimated tags (expanded for the sample rate) in fisheries or in escapement, averaged over brood years 2003–2008.

Some estimates are based on less than six years of data because some stocks were not tagged in all years. Coho Salmon escapements are not available in the Regional Mark Information System (RMIS) database for BC stocks, therefore, percentages shown for BC are only for fishery recoveries.

Region		Hatchery / Release Location	# Years Tagged	Mark-Selective Fisheries										Non-Selective Fisheries				Escapement		Total	
				BC		Puget Sound		WA Coast		Columbia R		OR Coast		Commercial		Sport					
				Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	Est
BC	Nass & Skeena	Gitnadoix Creek H	6	101	17%	-	-	-	-	-	-	-	-	152	67%	10	10%	-	-	177	672
	Central BC	Snootli Creek H	4	1	2%	-	-	-	-	-	-	-	-	94	61%	13	37%	-	-	99	367
		McLaughlin Bay NP	1	-	-	-	-	-	-	-	-	-	-	23	23%	6	77%	-	-	29	300
	Johnstone Strait	Chinnam River H	6	6	47%	-	-	1	1%	-	-	-	-	9	23%	2	28%	-	-	18	120
		Johnston Cr. Sooke	2	1	1%	-	-	-	-	-	-	-	-	29	25%	23	74%	-	-	52	220
	Georgia Strait	Big Qualicum River H	6	1	55%	1	8%	1	4%	-	-	-	-	4	31%	<1	22%	-	-	7	31
		Goldstream River H	6	5	34%	4	17%	4	13%	-	-	-	-	4	10%	1	15%	-	-	17	74
		Lang Creek H	2	24	50%	4	4%	5	2%	-	-	-	-	22	13%	11	30%	-	-	64	310
	W. Vancouver Isl	Robertson Creek H	6	88	93%	2	1%	7	5%	-	-	-	-	22	11%	1	1%	-	-	76	578
	Fraser R.	Inch Creek H	6	13	66%	4	8%	4	6%	-	-	1	1%	11	17%	1	4%	-	-	34	227
	Thompson R.	Spius Creek H	6	4	26%	5	21%	11	24%	-	-	2	6%	9	22%	<1	1%	-	-	31	105
WA	Strait of Juan de Fuca	Dungeness H	6	7	15%	2	2%	7	2%	-	-	-	-	53	52%	2	1%	102	47%	201	432
		Lower Elwha H	6	2	9%	2	3%	4	4%	-	-	-	-	11	25%	1	1%	94	56%	113	192
	Puget Sound North	Bernie Gallin H	6	4	5%	10	6%	22	4%	-	-	3	1%	230	71%	19	8%	38	4%	332	1106
		Glenwood Springs	1	-	-	-	-	-	-	-	-	-	-	2	100%	-	-	-	-	2	7
		Kendall Creek H	5	4	4%	5	2%	9	2%	-	-	-	-	171	72%	1	<1%	101	18%	289	755
		Lummi Sea Ponds	4	7	12%	4	2%	9	3%	-	-	2	1%	170	69%	3	6%	44	7%	237	613
		Skookum Creek H	6	6	4%	14	3%	17	3%	-	-	3	<1%	340	77%	2	<1%	183	13%	566	1,467
		Wallace R H	6	9	5%	15	3%	21	3%	-	-	4	1%	39	8%	15	4%	800	76%	903	1,064
		Whitehouse H	6	8	5%	15	3%	23	3%	-	-	3	<1%	177	21%	39	6%	642	62%	906	1,793
	Puget Sound Mid	Elliott Bay TR NP	4	9	5%	30	4%	33	5%	-	-	3	<1%	597	79%	42	9%	53	2%	768	2,795
		Voights Creek H	6	9	8%	23	6%	17	5%	-	-	1	<1%	160	45%	26	11%	187	27%	454	1,288
		Kitsap Creek	5	15	4%	58	4%	30	5%	-	-	4	<1%	397	41%	62	9%	847	39%	1,399	3,292
		Soos Creek H	6	4	4%	14	3%	15	2%	-	-	3	<1%	171	38%	16	4%	524	48%	736	1,715
		Grovedale	5	5	4%	25	10%	14	5%	-	-	1	<1%	211	68%	35	13%	62	2%	353	1,114
		Crisp Creek Rearing	5	11	5%	40	4%	34	2%	-	-	4	<1%	413	41%	30	4%	1,600	47%	2,232	4,372

Table 3-4. (Continued) Number of tagged and marked coho salmon sampled (Obs) and percent of total estimated tags (expanded for the sample rate) in fisheries or in escapement, averaged over brood years 2003–2008.

Region		Hatchery / Release Location	# Years Tagged	Mark-Selective Fisheries										Non-Selective Fisheries				Escapement		Total	
				BC		Puget Sound		WA Coast		Columbia R		OR Coast		Commercial		Sport					
				Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	Est
WA	Puget Sound South	Minter Creek H	2	2	4%	3	4%	6	4%	-	-	1	<1%	30	28%	4	4%	186	55%	230	337
		Clear Creek H	1	2	16%	2	4%	5	5%	-	-	-	-	50	63%	2	2%	19	10%	80	188
		Kalama Creek H	6	1	3%	7	9%	3	2%	-	-	1	<1%	41	39%	5	7%	122	40%	178	311
		South Sound Net Pens	6	4	4%	10	5%	13	4%	-	-	1	<1%	211	79%	16	8%	2	<1%	257	864
	Hood Canal	George Adams H	6	4	3%	9	3%	13	3%	-	-	1	<1%	74	23%	9	4%	662	65%	771	1,206
		Quilcene Bay Sea Pen	6	10	5%	23	4%	21	2%	-	-	2	<1%	219	52%	14	5%	425	31%	713	1,901
		Quilcene NFH	6	6	4%	20	4%	17	3%	-	-	2	<1%	186	53%	7	4%	375	31%	613	1,501
		Port Gamble Bay Pens	6	4	6%	13	7%	11	4%	-	-	1	<1%	123	76%	7	6%	11	2%	169	650
	N. WA Coast	Makah NFH	6	3	3%	3	1%	22	6%	-	-	6	2%	26	3%	2	1%	309	84%	370	961
		Quinault NFH	6	8	2%	5	<1%	120	6%	-	-	27	2%	606	53%	1	<1%	479	37%	1,246	4,632
		Salmon R Fish Culture	6	2	1%	2	<1%	50	8%	-	-	12	2%	263	57%	1	<1%	204	31%	534	1,573
		Soldiuc H	6	9	3%	5	1%	124	10%	-	-	30	3%	61	6%	6	1%	1,206	76%	1,440	2,796
	Grays Harbor	Bingham Creek H	6	2	1%	1	<1%	41	5%	-	-	7	1%	51	7%	12	3%	939	83%	1,052	2,362
		Friends Landing NP	3	1	2%	1	<1%	49	17%	-	-	6	2%	102	51%	16	10%	129	18%	304	940
		Satsop Springs Ponds	5	<1	1%	1	1%	8	9%	-	-	3	2%	11	8%	2	1%	209	78%	234	402
		Humptulips H	1	3	2%	1	<1%	53	13%	-	-	11	3%	161	48%	4	2%	320	31%	553	1,086
		Skookumchuck H	3	1	1%	3	<1%	64	11%	-	-	9	1%	87	13%	15	5%	1,093	69%	1,271	1,869
	Willapa	Forks Creek H	6	3	2%	1	<1%	56	7%	1	<1%	21	3%	126	27%	6	2%	652	59%	865	1,879
		Naselle H	6	2	2%	1	<1%	46	12%	-	-	14	4%	131	73%	2	1%	84	9%	279	994
		Nemah H	4	3	2%	2	<1%	76	14%	-	-	28	7%	110	41%	1	1%	412	35%	632	1,278
CR	Mid and Upper	Oxbow H	4	-	-	-	-	8	3%	5	2%	6	3%	36	18%	1	<1%	445	73%	500	610
		Klickitat H	6	1	1%	1	1%	90	40%	8	4%	42	21%	61	26%	4	5%	2	<1%	208	510
		Cascade H	5	-	-	-	-	27	9%	14	5%	21	8%	198	65%	1	<1%	102	13%	362	819
		Washougal H	6	2	1%	2	1%	89	24%	10	5%	43	14%	64	19%	2	1%	286	35%	498	840
		Wells H	2	-	-	-	-	3	1%	1	<1%	-	-	103	95%	1	<1%	26	4%	133	622

Table 3-4. (Continued) Number of tagged and marked coho salmon sampled (Obs) and percent of total estimated tags (expanded for the sample rate) in fisheries or in escapement, averaged over brood years 2003–2008.

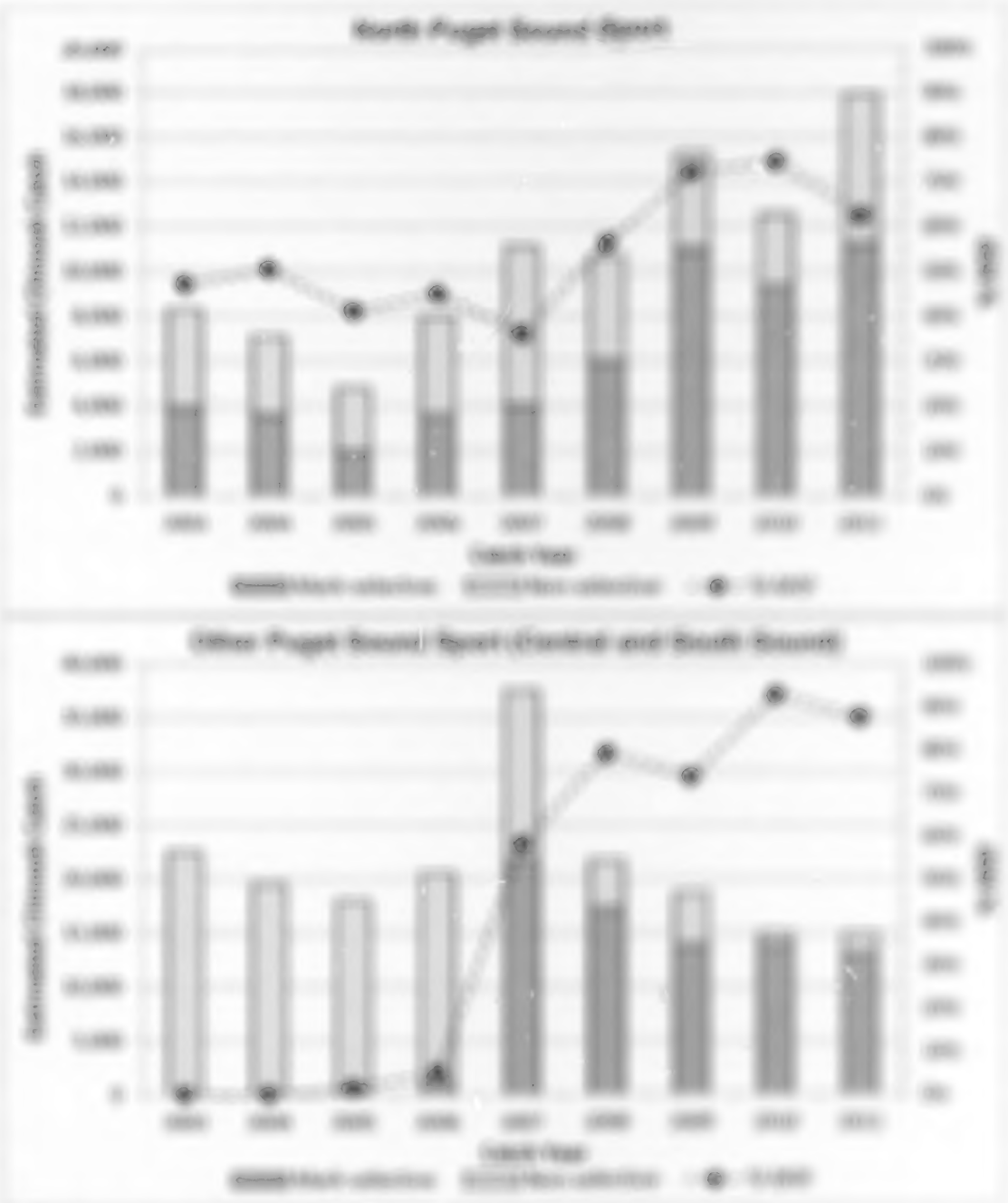
Region		Hatchery / Release Location	# Years Tagged	Mark-Selective Fisheries										Non-Selective Fisheries				Escapement		Total	
				BC		Puget Sound		WA Coast		Columbia R		OR Coast		Commercial		Sport					
				Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	% of Est	Obs	Est
CR	Lower CR	Big Creek H	6	-	-	-	-	18	6%	5	3%	15	7%	70	32%	1	1%	317	51%	424	632
		Bonneville H	5	-	-	-	-	47	7%	16	3%	46	8%	26	5%	2	<1%	1418	77%	1,555	1,856
		CEDC Youngs Bay Net	4	-	-	-	-	32	8%	11	4%	27	8%	293	80%	1	<1%	16	1%	379	1,118
		Cowlitz Salmon H	6	8	2%	4	<1%	374	28%	40	6%	163	15%	178	13%	19	2%	792	34%	1,578	2,893
		Deep River NP	6	-	-	-	-	16	6%	5	2%	15	6%	225	83%	-	-	20	2%	281	728
		Eagle Creek NFH	6	-	-	-	-	15	7%	6	4%	17	11%	22	27%	-	-	104	51%	165	481
		Elochoman H	5	<1	2%	-	-	23	14%	3	2%	18	14%	38	22%	1	1%	159	44%	243	369
		Faller Creek H	6	-	-	-	-	22	12%	7	8%	18	12%	11	10%	-	-	252	57%	310	431
		Grays River H	6	1	1%	1	<1%	34	18%	8	5%	31	18%	44	26%	1	<1%	180	31%	298	495
		Kalama Falls H	6	1	2%	1	<1%	40	13%	5	7%	23	9%	51	16%	1	1%	351	52%	472	694
		Klaskanine H	3	-	-	-	-	7	6%	2	2%	5	5%	42	56%	-	-	95	31%	151	312
		Klaskanine S FK Pond	3	-	-	-	-	28	9%	10	4%	21	7%	140	63%	1	<1%	141	16%	341	908
		Lewis River H	6	3	1%	6	<1%	261	12%	61	9%	148	8%	174	8%	4	<1%	2,507	62%	3,164	5,055
		North Toutle H	6	-	-	-	-	34	11%	15	11%	30	12%	14	6%	1	<1%	414	60%	508	810
		Sandy H	6	1	<1%	1	<1%	49	11%	16	5%	38	10%	75	16%	2	<1%	665	58%	845	1,174
OR	OR Coast North	Nehalem H	4	1	<1%	-	-	12	2%	-	-	20	5%	3	1%	1	<1%	1,023	91%	1,060	1,129
		Salmon River H	3	-	-	-	-	4	5%	-	-	5	11%	1	1%	1	3%	110	80%	121	139
		Trask River H	2	-	-	2	<1%	18	4%	-	-	65	14%	4	1%	1	<1%	1,102	81%	1,191	1,379
	OR Coast South	Butte Falls H	1	-	-	1	2%	8	13%	-	-	11	24%	5	21%	2	15%	23	24%	50	98
		Cole Rivers H	6	-	-	-	-	-	-	-	-	1	2%	-	-	1	1%	182	97%	185	187
		Rock Creek H	3	-	-	-	-	4	9%	-	-	32	76%	1	5%	2	7%	2	2%	42	113

Table 3-5. Number of tagged and marked Chinook salmon sampled (Obs) and percent of total estimated CWTs (% of Est) in fisheries or in escapement averaged over brood years 2001–2006.

		Mark-Selective Fisheries										Non-Selective Fisheries							
		PS		WA CST		COLR		TERM		Total		Commercial		Sport		Escapement		Total	
Region	Stock	Obs	%Est	Obs	%Est	Obs	%Est	Obs	%Est	Obs	%Est	Obs	%Est	Obs	%Est	Obs	%Est	Obs	Est
British Columbia	Atnarko Summer	-	-	-	-	-	-	-	-	-	-	52	36%	12	18%	19	46%	83	357
	Big Qualicum	1	1%	-	-	-	-	-	-	1	1%	23	21%	20	32%	44	46%	88	305
	Chehalis (Harrison Fall Stock)	2	1%	3	1%	-	-	-	-	5	2%	58	24%	26	17%	11	56%	99	704
	Chilliwack (Harrison Fall Stock)	5	1%	5	1%	-	-	-	-	11	2%	116	20%	67	25%	18	53%	212	1,775
	Cowichan Fall	1	1%	<1	<1%	-	-	-	-	1	1%	27	28%	25	46%	28	24%	81	297
	Dome Creek Spring	-	-	-	-	-	-	-	-	-	-	1	52%	1	30%	2	18%	4	28
	Kitsumkalum Summer	-	-	-	-	-	-	-	-	-	-	22	30%	48	27%	17	43%	156	820
	Nanaimo River Fall	-	-	-	-	-	-	-	-	-	-	8	9%	19	33%	8	58%	35	256
	Nicola River Spring	<1	<1%	1	<1%	-	-	-	-	1	1%	10	12%	16	14%	12	73%	39	346
	Puntledge Summer	-	-	-	-	-	-	-	-	-	-	12	19%	12	27%	28	54%	52	171
	Quinsam Fall	-	-	-	-	-	-	-	-	-	-	37	28%	20	29%	48	43%	105	344
	Robertson Creek	-	-	-	-	-	-	-	-	-	-	208	46%	97	33%	44	21%	341	1,356
	Lower Shuswap River Summers	-	-	<1	<1%	-	-	-	-	<1	<1%	99	36%	57	29%	22	34%	178	899
WA Puget Sound	George Adams Fall Fingerling	20	7%	9	3%	-	-	5	2%	34	12%	99	36%	37	21%	706	30%	876	1,029
	Green River Fall Fingerling	15	5%	5	2%	-	-	-	-	20	7%	208	51%	32	16%	510	25%	770	865
	Grovers Creek Fall Fingerling	30	9%	10	3%	-	-	-	-	40	12%	118	28%	46	18%	1,047	42%	1,251	1,111
	Nisqually Fall Fingerling	28	6%	7	2%	-	-	1	1%	36	9%	333	61%	31	10%	686	20%	1,086	1,698
	Nooksack Spring Fingerling	4	3%	1	1%	-	-	1	0%	6	4%	65	38%	28	31%	146	27%	245	543
	Samish Fall Fingerling	15	4%	9	2%	-	-	-	-	24	6%	326	59%	97	22%	264	13%	671	1,385
	Skagit Spring Fingerling	8	2%	2	1%	-	-	107	23%	117	26%	162	22%	40	19%	758	32%	1,078	1,155
	Skagit Spring Yearling	9	7%	1	1%	-	-	58	32%	68	40%	50	15%	20	22%	251	23%	389	463
	Skykomish Fall Fingerling	5	4%	2	2%	-	-	-	-	7	7%	38	24%	19	22%	389	47%	413	385
	South Puget Sound Fall Yearling	9	23%	1	1%	-	-	-	-	10	25%	16	24%	10	35%	63	16%	99	165
	Skagit Summer Fingerling	1	1%	1	1%	-	-	-	-	2	1%	145	40%	19	15%	80	43%	246	655
	Stillaguamish Fall Fingerling	8	5%	2	1%	-	-	-	-	10	7%	50	24%	24	27%	177	42%	262	513
	White River Spring Fingerling	4	12%	<1	2%	-	-	-	-	4	14%	17	39%	7	30%	39	16%	67	101

Table 3-5. (Continued) Number of tagged and marked Chinook salmon sampled (Obs) and percent of total estimated CWTs (% of Est) in fisheries or in escapement averaged over years 2006–2010.

Region	Stock	Stock Selective Fisheries										Non Selective Fisheries							
		PS		W & CST		COLR		TERW		Total		Commercial		Sport		Escapement		Total	
		Obs	%Est	Obs	%Est	Obs	%Est	Obs	%Est	Obs	%Est	Obs	%Est	Obs	%Est	Obs	%Est	Obs	Est
W & Coast	Hoko Fall Fingerling			[illegible]	[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Chasis Fall Fingerling											[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Sooes Fall Fingerling			[illegible]	[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Columbia R	Cowlitz Fall Tule			[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Hanford Wild											[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Columbia Lower R. H.	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Lewis River Wild											[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Lyons Ferry			[illegible]	[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Lyons Ferry Yearling			[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Spring Creek Tule	[illegible]	[illegible]		[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Columbia Summers				[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Upriver Brights				[illegible]						[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Willamette Spring				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
OR Coast	Elk River									[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Salmon River											[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



6 Tables, Figures, and Recommendations

6.1 Tabulation of Work Activity (Future) Proposals

Proposals are due by November 1 of the year before the NWA training proposed, e.g., November 1, 2014 for training proposed to occur in 2015–2016. Although most recipients do submit on or generally close to approximately this date, January 1 (April 1 for 2015–2016 training), NWA proposals should be considered for late submission and should include information on optional training on the grant or loan. NWA training may vary, being multinational or homogeneous in composition, although some 1-month NWA may well be homogeneous. The NWA recommends that agencies submit the date of the training proposed in a timely manner. In any proposal NWA is required to tabulate. Timely submission of proposals allows the timely identification of issues which are the responsibility of the PMO and to agencies while the annual training planning and data are occurring.

6.2 Sums of Work Activity (Future) Signals

The PMO has requested that management agencies provide (PDF) with two copies of NWA data have been processed. The form is a table (Appendix Table B-1) that provides information on sampling methods used to develop (PDF) of the training and programmed functions, one year in the NWA. Information on sampling procedures is needed because estimating respondents the data collected. In some circumstances (PDF) depends on the method of sampling employed, e.g., could add (PDF) processing procedures, and all suggest that sampled data are processed (PDF) information in the data. The form also asks about the completed (PDF) upon receipt, meaning of the year following the training. For instance, agencies in Alabama receiving in 2014 should fill in (PDF) the year following the training in 2015. The form asks about (PDF) and attach to Appendix Table B-1 and transmit (PDF) upon receipt, meaning data are available the information the week (PDF).

The second report is also in table (Appendix Table B-2) and provides data about training information in NWA. Also this is accurate, where and when data are accurate. Unless Capabilities, and other sampling and others. This table also provides those results on the participant and sampling each week, e.g., in Alaska (PDF). This information is required for evaluation of the training. This is (Should) attend, the (PDF) (Should) Northeast (Connecticut of 2013) requires data and 2013 (Should) (Should) evaluations are approved for NWA, not use in the (PDF) (Should) (Should). In accordance, would the the sampling are (PDF) in Appendix Table B-1 may use in 2007, and the process sampling (Should) not be used in (Should) use multiplying the (2 %) weeks. Using estimates from the (PDF)(PDF) state quite use report the the summer (PDF) in Washington (Week 10), as example in the report (Appendix) is provided in Appendix Table B-1.

[illegible]

6.2 Recognition Representation of CFRP Indicators in MIF Groups

[illegible]

6.2.1 Cable Indicators Double Helix Fig.2 Groups

[illegible]

6.2.2 Ethanol Indicators Double Helix Fig.2 Groups

[illegible]

6.0 Ultimate BMX and Sampling Method

Ultimate was a dominant BMX brand, known for its sponsorship of riders and its aggressive, street-style marketing. Many enthusiasts still regard Ultimate as the benchmark for BMX quality. The company's catalogue included frames, forks, handlebars, wheels, and complete bikes, with a strong emphasis on durability and performance under competition conditions. Ultimate's marketing was closely tied to the culture of street and park riding, with photography and video production that showcased its products in real-world settings. The brand's influence extended beyond its own customers, as many other companies copied its designs and marketing approaches.

Ultimate's product range included frames made from chromoly steel and aluminium, forks with various crown and steerer configurations, and wheels with different rim profiles and spoke patterns. The company also produced complete bikes at different price points, with the intention that customers could upgrade components over time. Ultimate's catalogue included detailed specifications for each product, including weight, geometry, and recommended use. The company's marketing emphasised the importance of matching equipment to riding style and skill level.

6.1 Modelling Expenditure in BMX

Modelling expenditure in a hobbyist BMX context is complicated by the fact that riders rarely purchase everything at once. The decision to upgrade a component is influenced by the condition of the existing component, the availability of funds, the rider's skill level, and the social context in which the rider participates. A rider who is competing in a local series may prioritise wheels and tyres, while a rider who is primarily riding for fitness may prioritise a new frame or a complete bike. The relative importance of these factors varies from rider to rider and from one purchase to another.

Different types of riders have different patterns of expenditure. A rider who is just starting out may spend most of their budget on a complete bike and then gradually upgrade components as they learn what they need and what they can afford. A rider who is competing may spend a significant portion of their budget on wheels and tyres, which are the components most directly affected by performance. A rider who is primarily riding for fitness may spend more on a comfortable frame and a reliable drivetrain than on lightweight components. The model should be able to represent these different patterns of expenditure and to allow the user to adjust the parameters to reflect their own circumstances.

Table 6-1. Types of mixed bag regulations proposed for Chinook MSF's.

Regulations Type	Examples	Locations
Mixed bag, marked only above minimum size	2/day, keep all between 45-67 cm, only marked over 67 cm	BC Strait of Juan de Fuca
Mixed bag, adults only marked and juveniles marked or unmarked	Bag limit of 6, up to 2 adults (>24"), which must be marked. Minimum size limit of 12". *OR Coast:* Some areas are partially MSF, where an angler may retain Unmarked Chinook Salmon as part of the 2 fish daily bag limit. Adjacent areas may be non-selective or entirely mark selective. *OR Coast of rivers:* variable because of a seasonal limit of 10 unmarked Chinook. These regulations do not apply to Chinook jacks (15"-24")	Snake River fall Chinook, and Oregon coastal
Regulations differ between states in mixed bags of adults and juveniles	The daily limit for adult Chinook is the same between the states, but the daily limit on jack Chinook is different. *Washington* sport daily limit of 6 salmon, of which only 2 may be adults (marked only), minimum size limit of 12". *Oregon* sport daily limit is 2 marked adult Chinook (>24" total length) and 5 marked jacks (15"-24" total length)	Columbia River Chinook sport fisheries
Seasonal limit on unmarked fish	Seasonal limits for unmarked fish may range from 1-10 unmarked Chinook depending on the river system. The catch of marked Chinook has no seasonal limit	Oregon coastal Chinook

5 REFERENCES

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6 APPENDICES

Appendix A. Understanding of the Pacific Salmon Commission Concerning Mass Marking and Selective Fisheries (Revised February 2004).

Understanding of the
Pacific Salmon Commission
Concerning
Mass Marking and Mark Selective Fisheries

February 2004 Policy Statement

The Pacific Salmon Treaty's Memorandum of Understanding (MOU) obliges the Parties to, among other things, "maintain a coded-wire-tag and recapture program designed to provide statistically reliable data for stock assessment and fishery evaluation." The Pacific Salmon Commission (PSC) recognizes that the selective fisheries for marked hatchery coho and Chinook salmon can impact the coastwide coded-wire-tag (CWT) program. For the sole purpose of fulfilling this MOU obligation, the PSC has established the following policies and procedures. This policy does not preclude the PSC from evaluating the impacts of, and making recommendations concerning, mass marking or selective fishery plans as they affect the negotiation and establishment of Treaty annex provisions.

It shall be the policy of the PSC to review proposals for mass marking and selective fisheries to determine consistency with the Parties' commitment to the MOU provisions regarding the reliability of data needed for management of salmon fisheries within the jurisdiction and management area of the Treaty, including whether they impose substantial cost increases for agencies to conduct required data collecting programs.

The PSC shall establish a Selective Fishery Evaluation Committee (SFEC) to perform the activities set forth in the attached Terms of Reference.

To facilitate the SFEC review, the Parties shall do their utmost to ensure that their domestic managers submit all proposals for mass marking (MM) and mark-selective fisheries (MSF) which could potentially affect stocks or fisheries of concern to the PSC in accordance with the following schedule:

1. Not later than June 1 of each year. Provide early notice containing the agency's plans to consider conducting MSFs over the next 3-5 years.
2. Not later than June 1 of the year prior to implementation. Provide new or substantially changed MM or MSF project proposals.
3. Not later than November 1 of the year prior to implementation. Provide proposals for MM or MSF programs that are anticipated to continue annually without substantive change.
4. Upon completion of domestic fishery planning processes, agencies conducting MSFs are to provide final selective fishery plans.

5. Upon completion of MM programs, agencies are to report the number of fish that were actually mass marked and the extent to which releases are (single and double index) tagged for assessment.
6. Agencies shall report results of MSFs conducted during a season in the annual post-season report provided, using a format specified by the SFEC.
7. Not later than November 30 of the year following conduct of MSFs. Agencies are to report fishery and stock-age-specific estimates of mortalities for unmarked fish impacted by MSFs to the PSC technical committees

- The PSC shall consider, by the annual February PSC meeting, the SFEC reviews of proposals for MM and MSFs and discuss potential actions to address concerns related to any MM or MSF proposals that the SFEC determines will significantly and adversely affect the CWT program.
- The Parties will do their utmost to ensure that MM and MSF proposals are developed in consultation with domestic co-management agencies or processes, and that proposing agencies or entities provide information required by the SFEC and adhere to reporting requirements to enable the PSC technical committees to complete their assignments in a timely manner.
- After the occurrence of a selective fishery and when the data are available, the PSC shall review the management agency report on the actual conduct of the fishery with respect to its impact on the CWT program, and recommend changes and improvements.

Terms of Reference for the Selective Fishery Evaluation Committee

I. Reporting and Committee Structure: The Selective Fishery Evaluation Committee (SFEC) will report to the PSC and will be comprised of a Steering Committee and two working groups: the Regional Coordination Working Group (RCWG) and the Analytical Working Group (SFAWG). All official members of the Steering Committee and working groups will be considered members of the SFEC.

A. Steering Committee: The Steering Committee will be comprised of:
1. the co-chairs of the PSC Coho Technical Committee, Chinook Technical Committee, and Data Sharing Technical Committee;
2. the co-chairs of the two working groups;
3. agency mass-marking/selective-fishery coordinators; and
4. additional agency representatives approved by the responsible Party.

B. Regional Coordination Working Group (RCWG): The RCWG may be comprised of members of the Steering Committee and other PSC technical committees and of the agency representatives approved by the responsible Party. All RCWG members should contribute actively to the work of this group.

C. Selective Fishery Analysis Working Group (SFAWG): The SFAWG may be comprised of members of the Steering Committee and other PSC technical committees and of the agency representatives approved by the responsible Party. All SFAWG members should contribute actively to the work of this group.

II. Duties of the SFEC

A. Serve as a coastwide clearinghouse to facilitate the appropriate level of coordination and reporting on MM and MSF programs among the Parties, affected agencies, and existing coastwide and regional committees established to monitor activities related to the coastwide CWT program;

B. Provide advice to the PSC regarding potential adverse impacts of MM and MSFs on the CWT program;

C. Assess and monitor the cumulative impacts of MSFs on stocks of concern to the PSC;

D. Provide MM or MSF project proponents with information regarding concerns for potential impacts of their projects on the CWT program.

E. Receive and review MM and MSF proposals from the proponent(s) as early in the planning process as possible to identify potential issues and concerns regarding impacts on the CWT program.

F. Establish a technical evaluation process that will:

1. Review proposed mass-marking/selective-fisheries initiatives developed by the proponent(s) and identify potential impacts on other jurisdictions and the CWT program;
2. Review, in consultation with relevant PSC technical committees, procedures and protocols for marking, sampling, and evaluation developed by the proponent(s) and, if appropriate, develop and recommend alternative procedures to address potential concerns or measures that could be taken to mitigate for adverse impacts on the CWT program;
3. Establish standard formats and reporting requirements for agencies conducting MSFs to use when providing post-season information. Review post-season agency evaluations of the performance of MSFs and their estimates of mortalities on stocks of concern to the PSC;
4. Identify information needs or request modifications of proposals to meet concerns regarding impacts on the CWT program; and
5. Conduct, at agreed intervals, technical evaluations of mass marking and selective fishery programs in order to assist the Parties to maintain the integrity of the CWT program.

G. Work with PSC Technical Committees to establish formal standards and objectives for a viable CWT program to enable more precise evaluation of potential impacts of MM and MSFs on the viability of the coastwide CWT program and to guide the development of mitigation measures.

H. Specific duties of the Steering Committee include being responsible for overall coordination and prioritization of the activities for the working groups and being the focal point for reporting to the PSC. The agency mass-marking/selective-fishery coordinators should ensure that mass marking and selective fishery proposals are provided to the SFEC in a timely manner.

III. Specific duties of the RCWG, among other related activities, include:

A. Coordinate and report on continuing research on electronic detection and mass marking technologies;
B. Collate and share information on CWT sampling procedures and programs; suggest modifications to sampling and monitoring programs to proponents;
C. Review MM proposals to determine potential impacts on sampling and tagging programs;
D. Provide agencies with a list of MM and MSF proposals received by the SFEC;
E. Provide the necessary liaison with the Data Standards Working Group of the Data Sharing Technical Committee to ensure that necessary modifications are made to PSC data exchange formats to maintain the integrity of the CWT system; and
F. Prepare an annual report summarizing mass marking statistics, index tag groups, and sampling programs for marks and CWTs.

IV. Specific duties of the SFAWG, among other related activities, include:

A. Design marking and sampling strategies that will achieve desired precision for CWT-based estimates;
B. Develop analytical tools for the evaluation, by the SFEC and MSF proponents, of MM programs and MSFs and their potential impacts on the coastwide CWT program,
C. Provide the necessary technical liaison with agencies and other coastwide committees working on selective fishery evaluation models;
D. Review and recommend parameter values for assessing impacts of MSFs;
E. Develop analytical tools for estimating the impacts of MSFs on escapements and exploitation rates for naturally spawning coho and Chinook stocks based on post-season information;
F. Review MSF proposals and provide advice to the proponents regarding the design of MSFs and the conduct of sampling and monitoring programs; and
G. Recommend guidelines, procedures, and/or time frames necessary to evaluate the success of MSFs in conserving naturally spawning stocks.

L. Cassidy J. Davis
Chair Chair

Appendix B. Mass Marking Proposal Template.

Template for Mass Marking Proposals

Mass Marking Proposal ID #	
Date Received	

PROPOSAL TITLE:

This template is intended for proposals to mark any release group from a hatchery complex or area that meets all of the following conditions:

1) Chinook or coho Salmon;
2) 100,000 or more fish in release group
3) fish are marked with an adipose clip, but untagged; and
4) expected to be intercepted in Pacific Salmon Commission fisheries.

CONTACT INFORMATION

Proposing Agency	
Contact Person	
Mailing Address	
Phone Number	
Fax	
Email	

IS THE PROPOSAL:

New	
substantially changed	
or a continuation of a previous proposal	

PROPOSED MARKING AND TAGGING

1. **Purpose of Mass Marking**
   a. Provide a brief description of the goals and objectives of the proposal (e.g., to obtain information on hatchery straying to wild spawning grounds, to increase fishing opportunities, or to identify hatchery/wild compositions in fisheries).

   b. If this is not a new proposal, list the Mass Marking Proposal ID number(s) (assigned by the PSC Executive Secretary) corresponding to the previous proposal. In addition, **describe any significant differences from previous proposals** (i.e., additions or deletions of mass marked stocks or DIT groups).

   c. Identify potential mark-selective fisheries that your agency may pursue in the future that will target these proposed mass marked stocks.

2. **Proposed 2015 Marking and Tagging Levels**

   List all proposed mass marking and DIT plans (see example format below), including the following fields: area/region, hatchery, stock, number of fish to be tagged with and without fin clip, number of fish to be untagged with and without fin clip, and prior marking status.

Example format for proposed mass marking and tagging plans. Identify all DIT groups with an asterisk (*).

Species:
Brood Year:
Release Year:

Area or Region	Hatchery	Stock	Number to be Tagged (CWTs)		Number to be Untagged		Marked Last Brood Year? (Y/N)
			Ad+CWT	CWT Only	Ad Only	No Clip	
Total for Region							

3. **Concerns Regarding the Proposal**
   a. **List any known reviews of the mass marking proposal** that have been conducted (e.g., by the Mark Committee) and the outcome of those reviews. List any marking programs/agreements that this proposal may conflict with and briefly describe the possible conflict.

   b. **List any issues of concern previously identified** by the SFEC, PSMFC Mark Committee, or fishery management forums related to this mass marking proposal, and describe how those concerns have been addressed.

Appendix C. Mark-Selective Fishery Proposal Template

TEMPLATE FOR MARK-SELECTIVE FISHERY PROPOSALS (WORD VERSION)

Mark-Selective Fishery Proposal ID #	
Date Received	

MARK-SELECTIVE FISHERY PROPOSALS - TITLE

Contact information

Proposing Agency	
Contact Person	
Mailing Address	
Phone Number	
Fax	
Email	

Is the proposal

new or not yet reviewed by PSC-SFEC	
substantially changed	

Purpose/management objective

Describe the management objective of the proposed mark-selective fishery.

Location and time of the proposed mark-selective fishery

Please include any information when there are breaks or changes in regulations that might impact sampling stratification (see Question 7b below):

1. Location of the fishery:
2. Year and month(s) when the fishery is proposed to occur:

Other information about the fishery:

3. Target species/stocks (including nontarget PSC species/stocks of concern):
4. Gear to be used:
5. Other regulation details (e.g., size restrictions, bag limits, mixed bag information):

Projected impacts BY the fishery

5. Identify all (coast-wide) CWT stocks likely to be encountered in the fishery (including individual tag codes if available), whether these stocks were Double Index Tagged (DIT). Appendices F and G provide tables of tagged indicator stocks for coho and Chinook for your convenience. Please note we are interested in tagged impacts alone, untagged hatchery production should not be included.

In-season management

1. Describe your sampling program for sampling for CWTs, marks and estimation of total catch. Attach your sampling plan if available. At a minimum, include descriptions for the following:
   a. CWT recoveries.
      i. Will there be random sampling of CWTs (i.e., fishers existing fisheries contracted for biological sampling of harvest) or will you be using voluntary programs?
      ii. If random will there be ETD or visual identification of tagged fish?
      iii. If ETD in random sampling, will all tagged fish (marked and unmarked) be processed?
      iv. If random what is the expected sample rate for CWTs?
      v. If voluntary programs are used, how is the awareness factor estimated?
   b. Monitoring for retained catch by sample strata for sample expansions. The sample strata and the strata of catch estimation must match the location/time/regulation strata (i.e., whenever there is a change in regulation such as from MSF to non-selective, or change in bag limits, the sampling strata should also change).
   c. Monitoring of mark rate in the MSF (this is the total mark rate, percent marked in the harvest from the fishery).
   d. Other information, e.g., retained unmarked fish (mixed bag fisheries, or mark recognition error in MSF).

Other information.

6. Please include any other information that will be useful for estimation of unmarked tagged mortalities in your MSF. For instance, sources of estimates of unmarked or marked ratios for DIT tagged groups (e.g., in a net fishery, nearby hatchery, non-selective fishery). Please provide any input you wish on methods to estimate the unmarked tagged mortalities for DIT groups, or for appropriate release mortality rates to be used.

Appendix D. Work-Selective Fishery Proposal Spreadsheet Template

Template 3 for
WSF Proposals Year 2015

Fishery information						Other regulations			WSF details		Sampling program						Other
[illegible]	[illegible]	[illegible]	[illegible]	Fishery type [illegible]	Species (Target and Main selection)	[illegible]	[illegible]	Other regulations [illegible]	[illegible]	[illegible]	WSF sampling method [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Other sampling [illegible]	Other [illegible]

Appendix G — Terms of Wine Working Proposals Received in 2011 for Wine Working in Rioja in 2011

Description of Proposed Cash Options	Total in Competitive Proposals	2011 Proposed Yields
Cash Options		
Southern UK – 1 day – 1,000 L	2 submissions	[illegible]
Regal Vineyard 1 day – 10,000 L/Year	2 submissions	[illegible]
Washington 1 year 1 day – 10,000 L/Year	2 submissions	[illegible]
Washington 1 Leading Edge 1 day – 10,000 L/Year	2 submissions	[illegible]
1 Leading Edge 1 day – 1,000 L	2 submissions	[illegible]
Regal Vineyard and NY 1 year 1 day – 1,000 L	2 submissions	[illegible]
1 Leading Edge 1 day – 1,000 L	2 submissions	[illegible]
Chapel 1 year 1 day – 1,000 L	2 submissions	[illegible]
Barrel Options		
1 Leading Edge 1 Barrel – 1,000 L	2 submissions	[illegible]
NY 1 year 1 day 1 Barrel – 1,000 L	2 submissions	[illegible]
NY Barrel Fill on Spring 1 Barrel – 1,000 L	2 submissions	[illegible]
UK Barrel 1 year Spring 1 Barrel – 1,000 L	2 submissions	[illegible]
UK Barrel 1 year Spring 1 Barrel – 1,000 L	2 submissions	[illegible]
1 Leading Edge 1 day 1 Barrel – 1,000 L	2 submissions	[illegible]
UK 1 year 1 day 1 Barrel – 1,000 L	2 submissions	[illegible]
Barrel 1 Leading Edge Spring 1 Barrel – 1,000 L	2 submissions	[illegible]
Barrel Fill on 1 day 1 Barrel – 1,000 L	2 submissions	[illegible]
Barrel Fill on Spring 1 Barrel – 1,000 L	2 submissions	[illegible]
Regal Vineyard Total, 10 – 10,000 L/Year	2 submissions	[illegible]
1 Leading Edge – 1 Barrel – 10,000,000,000,000	2 submissions	[illegible]
Washington 1 Leading 1 Barrel – 10,000 L/Year	2 submissions	[illegible]

[1] The proposed barrels contained in all Barrel Options. Wine Fog Fence Installed in 1,000 L 1,000 proposed in each case.

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Appendix G. Current PSC Chinook CWT Exploitation Rate Indicator Stocks and DIT Groups.

Group	Natural Unmarked Stock Representation	Exploitation Rate Indicator Stocks	Run Type	DIT
S.E. Alaska	Southeast Alaska	Alaska Spring	Spring	
British Columbia	North/Central BC	Kitsumkalum	Summer	
	West Coast Vancouver Is.	Robertson Creek	Fall	
	Georgia Strait	Puntledge	Summer	
		Quinsam	Fall	
		Big Qualicum	Fall	
		Cowichan	Fall	
	Lower Fraser River	Chehalis (Harrison Stock)[1]	Fall	
		Chilliwack (Harrison Stock)	Fall	dropped
Puget Sound	North Puget Sound	Snoqualmie Spring Fingerling	Spring	dropped
		Samish Fall Fingerling	Fall	√
	Central Puget Sound	Skagit Spring Yearling	Spring	√
		Skagit Spring Fingerling	Spring	
		Skagit Summer Fingerling	Summer	
		Skykomish Summer Fingerlings[2]	Fall	√
		Stillaguamish Summer/Fall Fingerling	Fall	
	Hood Canal	George Adams Fall Fingerling	Fall	√
	South Puget Sound	White River Spring Yearling[3]	Spring	
		Green River Fall Fingerling	Fall	√
		Grover Creek Fall Fingerling	Fall	√
		Nisqually Fall Fingerling	Fall	√
		South Puget Sound Fall Yearling	Fall	
	Strait of Juan de Fuca	Hoko Fall Fingerling	Fall	
Washington Coast	North Washington Coast	Sooes Fall Fingerling	Fall	
		Queets Fall Fingerling	Fall	
		Quinault Lake Fall Fingerling[2]	Fall	√
	Willapa Bay	Forks Creek Fall Fingerlings[2]	Fall	√
		Naselle Bt.[2]	Fall	√
Columbia Basin	Columbia R. (WA)	Cowlitz Tule	Fall Tule	
		Spring Creek Tule	Fall Tule	√
		Little White Salmon[2]	Fall Bright	√
		Columbia Summers	Summer	
	Columbia River (OR)	Columbia Lower River Hatchery	Fall Tule	dropped
	Upper Columbia R.	Columbia Upper Bright	Fall Bright	
		Hanford Wild	Fall Bright	
		Priest Rapids		√
	Lower Columbia R.	Lewis River Wild	Fall Bright	
		Willamette Spring	Spring	dropped
		Lewis River Spring[2]	Spring	√
	Snake River	Lyons Ferry	Fall Bright	
Oregon Coast	North Oregon Coast	Salmon River	Fall	

[1] These stocks are CWT-tagged, but there is no quantitative CWT recoverage data, useful for distribution only.
[2] DIT group not currently an indicator stock.
[3] No longer adjacent to chipset.

Appendix H. Mark-Selective Fishery Post-Season Report Templates.

Templates with examples are provided below in Appendix Tables H.1 and H.2 and are available to download at http://www.psc.org/info_sfac.htm.

Appendix Table H.1. CWT sampling in both non-selective and mark selective fisheries.

SECTION 1. GENERAL SAMPLING PROGRAMS

		Chinook Salmon			Coho Salmon		
Region	Sector	CWT Sampling Method	CWT Detection Method	Heads Processed	CWT Sampling Method	CWT Detection Method	Heads Processed

SECTION 2. EXCEPTIONS

		Chinook Salmon			Coho Salmon		
Region	Sector	CWT Sampling Method	CWT Detection Method	Heads Processed	CWT Sampling Method	CWT Detection Method	Heads Processed

Notes:

1. Sampling information is to be provided in two sections. The sampling programs described in Section 1 are presumed to apply, unless specifically noted in Section 2.
2. See sheets 'Table 1 Instructions' and Example Table 1' for further information on completing Table 1

Table H.1 Instructions -- Sampling information is to be provided in two sections. The sampling programs described in Section 1 are presumed to apply, unless specifically noted in Section 2.

Column	Description
Region	Fishery Reporting Region
Sector	Troll
	Sport
	Net
	First Nations
	Personal Use
CWT Sampling Method	Direct
	Voluntary
	None
CWT Detection Method	Visual
	Electronic
Heads Processed	All
	Only Marked Fish
	Other (describe)

One entry per region and fishery sector as appropriate

Example Table H.1 --

Agency WDFW **Year** 2011

		Chinook Salmon			Coho Salmon		
Region	**Sector**	**CWT Sampling Method**	**CWT Detection Method**	**Heads Processed**	**CWT Sampling Method**	**CWT Detection Method**	**Heads Processed**
Ocean	Troll	Direct	Electronic	All	Direct	Electronic	All
Strait of Juan De Fuca	Troll	Direct	Electronic	All	Direct	Electronic	All
Puget Sound	Net	Direct	Electronic	All	Direct	Electronic	All
Area 8/8A	Sport	Direct	Electronic	All	Direct	Electronic	All
Freshwater	Sport	None	None	NA	None	None	NA
Freshwater	Net	Direct	Electronic	All	Direct	Electronic	All

Appendix Table H.2. Information on MSFs that have occurred, locations, periods and locations and what sampling and monitoring was conducted to recover CWTs and estimate total encounters and unmarked mortality and compliance in these MSFs. Compliance includes estimation of mark recognition error (marked fish released) and unmarked retention error (unmarked fish retained and landed). This table provides information on actual implementation of MSFs proposed for season.

Agency (B2)						Year (F2)					Estimate Type (I2)															
Fishery Information						MSF Regulations					Sampling program						Estimated Catches and Releases								Release Mortality Rates	
																	Marked Fish				Unmarked Fish					
Contact Information	Fishery Area	Fishery type	Start Date (MM/DD/YY)	End Date (MM/DD/YY)	Target Species for Fishery	MSF Species	Bag limits adult and juvenile by mark status	Lower Size Limit	Upper Size Limit	Other	CWT sampling method	CWT Detection method	Heads Processed	Mark Rate	Method for Catch Estimation	Method for Release Estimation	Retained	Legal Sized Fish Released	Sub-Legal Sized Fish Released	Extra-Legal Sized Fish Released	Retained	Legal Sized Fish Released	Sub-Legal Sized Fish Released	Extra-Legal Sized Fish Released	Legal and Extra-Legal Sized Fish	Sub-Legal Sized Fish

Note: See sheet 'Table 2 Instructions' for further details on how to complete Table 2.

Table H.2 Instructions

Cell	Description
B2	Enter Agency Name
F2	Enter Fishing Year
I2	Preliminary
	Final

One entry per each MSF regulation (e.g., revision in retention or gear restrictions)

FISHERY INFORMATION	
Column	**Description**
Contact Information	Name, phone number, email address for additional information
Fishery Area	Area covered by MSF regulation
Sector	Troll
	Sport
	Gillnet
	Seine
	Personal Use
	Other
Start Date (MM/DD/YY)	Starting date for MSF regulation
End Date (MM/DD/YY)	Ending Date for MSF Regulation
Target Species for Fishery	Chinook
	Coho
	Other
MSF REGULATIONS	
Column	**Description**
MSF Species	Chinook
	Coho
	Other
Bag limits adult and juvenile by mark status	Describe retention limits (e.g., marked fish only, marked only adults, 1 marked adult, 2 jacks regardless of mark status)
Minimum Size Limit	Minimum size limit for retention. Specify unit of measurement (inches, centimeters) and type of measurement (e.g., total length, fork length)
Maximum Size Limit	Maximum size limit for retention if applicable). Specify unit of measurement (inches, centimeters) and type of measurement (e.g., total length, fork length)
Other regulations	Enter information on other applicable restrictions (e.g., barbless hooks, live bowes, tangle nets, mesh size)

CWT SAMPLING	
Column	**Description**
CWT Sampling Method	Direct
	Voluntary
	None
CWT Detection Method	Visual
	Electronic
Heads Processed	All
	Only Marked Fish
	Other (describe)
Mark Rate	Enter method to estimate mark rate (None, Observer, Angler interviews, Samplers)
Method For Catch Estimation	Enter method to estimate catches (None, Catch Slips/Tickets, Phone survey, Observer, Angler interviews, Creel Census, Catch Record Card, Log Books)
Method For Release Estimation	Enter method to estimate releases (None, Catch Slips/Tickets, Phone survey, Observer, Angler interviews, Creel Census, Catch Record Card, Log Books)
UNMARKED FISH	
Column	**Description**
Retained	Number of fish retained (if unavailable, enter NA)
Legal Sized Fish Released	Number of legal-sized fish released (if unavailable, enter NA)
Sub-Legal Sized Fish Released	Number of Sub-Legal Sized fish released (if unavailable, enter NA)
Extra-Legal Sized Fish Released	Number of fish above the maximum size limit released (as applicable, (if unavailable, enter NA)
Extra-Legal Sized Fish Released	Number of fish above the maximum size limit released (as applicable, (if unavailable, enter NA)
RELEASE MORTALITY RATES	
Column	**Description**
Legal and Extra Legal Sized Fish	Assumed total mortality rate for fish larger than the minimum size limit that are released (immediate and delayed)
Sub-Legal	Assumed total mortality rate for fish smaller than the minimum size limit that are released (immediate and delayed)